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DIGEST**



APRIL, 1936
Vol. 42 No. 4



DOCTOR ASHTON SMILED as the door closed on the last patient of the day. "Another one we can count on regularly after this," he remarked to his assistant. "He was surprised that the 'drilling' caused so little pain, and that



I finished the work so quickly. Apparently it made him a little dubious about the quality of my workmanship, until I explained how much the bur had to do with it. He's a factory superintendent, and got the point immediately. Said he knew that a metal-cutting tool or drill that dulled quickly or was ground at the wrong angle required much greater pressure, heated up rapidly, removed less stock, and wouldn't cut accurately, but it had never occurred to him that the same thing would be true of a tiny dental 'drill'...



'What I can't understand, Doctor,' he said, 'is why more dentists don't realize how much they'd gain by being particular about the quality of the drills they use. I know I won't keep putting off my visits to the dentist after this, and I'm going to tip off some friends who've been stalling along, too.' . . . I didn't tell him that I never fully appreciated the importance of good burs myself until I stopped at the Ransom & Randolph factory on my vacation trip last summer and saw with my own eyes a lot of things that



salesmen have told me about, but which I had always taken with a grain of salt. I figured then and there that if a manufacturer took such pains to maintain the quality of his product as to check it at every stage of production, straight through from testing the raw material to a final minute inspection of each finished piece, there must be a reason for it— and my experience with New Cutwells these past few months has proved that there is . . . Seems good, doesn't it, to keep all booked up with appointments for days ahead? That sure was a profitable vacation trip for me."



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The DENTAL DIGEST

VOLUME 42

April, 1936

NUMBER 4

Extensive Prosthetic Restorations: Raising the Bite - - -	112
<i>Jerome M. Schweitzer, B.S., D.D.S.</i>	
Restorative Prosthesis - - - - -	117
<i>Joseph E. Schaefer, M.D., D.D.S.</i>	
A Master Model Technique for the Construction of Inlays, Crowns, and Bridgework - - - - -	119
<i>E. E. Bailey, D.D.S.</i>	
Announcement of Books Received - - - - -	123
The Editor's Page - - - - -	124
Surgical Flap and Semiflap Technique in Periodontal Surgery	125
<i>Olin Kirkland, D.D.S.</i>	
About Our Contributors - - - - -	130
Letter to The Editor - - - - -	132
On To San Francisco, Convention City - - - - -	133
<i>Sanford M. Moose, D.D.S.</i>	
Publishers Notebook - - - - -	137

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EXTENSIVE PROSTHETIC RESTORATIONS: RAISING THE BITE

JEROME M. SCHWEITZER, B.S., D.D.S.

New York

MY PROCEDURE in raising a bite is as follows:

1. First study models are made. The impressions are taken with "Trulastic."

2. A complete set of roentgenograms is taken.

3. Each tooth is examined separately for motion, particularly those teeth that are going to serve as abutment teeth for subsequent restorations.

4. The facial expression is studied. A face mask is made. Photographs

are taken, both of the face and of the teeth.

5. The way in which the remaining teeth receive their stress is noted, and attention is paid to the maxillary tuberosity to see whether there will be too much interference.

Fig. 1—Original photograph with the mouth in repose.

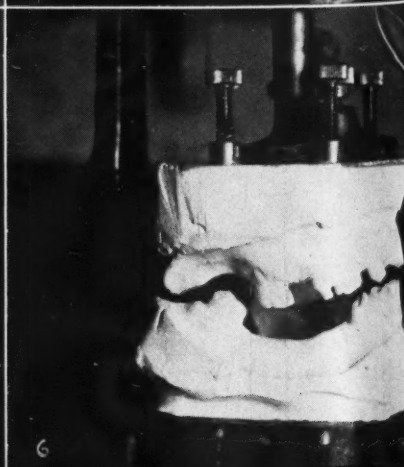
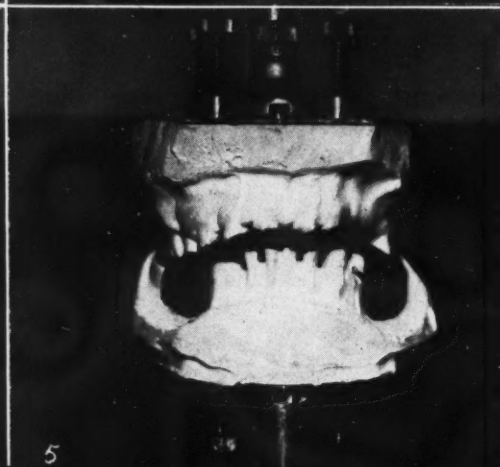
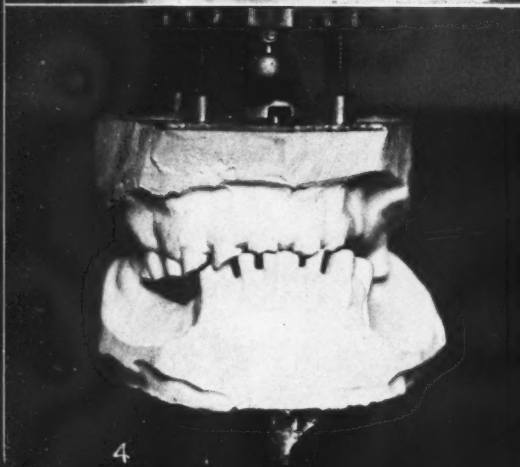
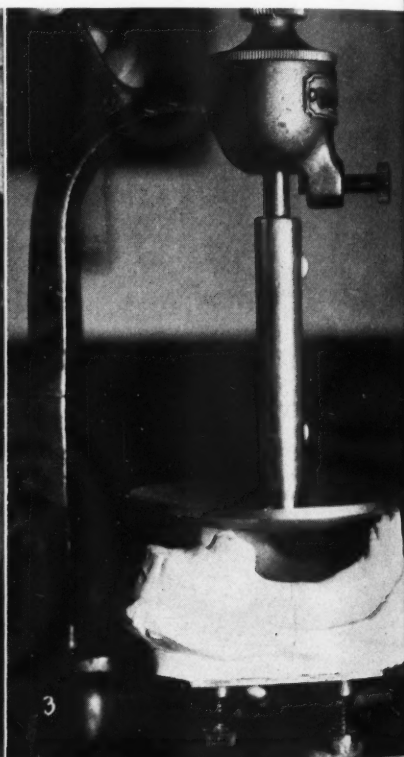
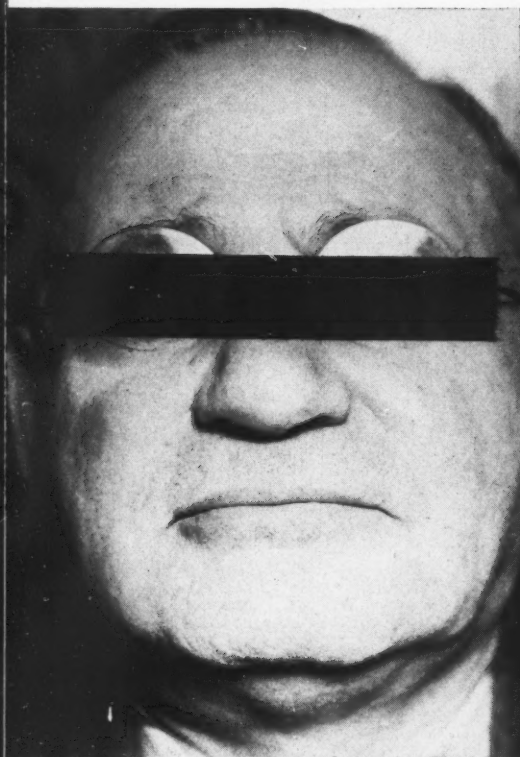
Fig. 2—Condition of the teeth before any work was attempted. Although these teeth were ground down, there was absolutely no motion present.

Fig. 3—Side view of model. Notice that the axis of the pendulum is in the vicinity of the first molars.

Fig. 4—Disc replaced by upper model. Note: The upper plate of the articulator has no screws, as this photograph indicates. This was an extra lower plate which was used as a substitute for an upper.

Fig. 5—Bite plate in position in modeling compound. This was checked in the mouth for accuracy, before the bite plate was vulcanized.

Fig. 6—Side views with the bite open.



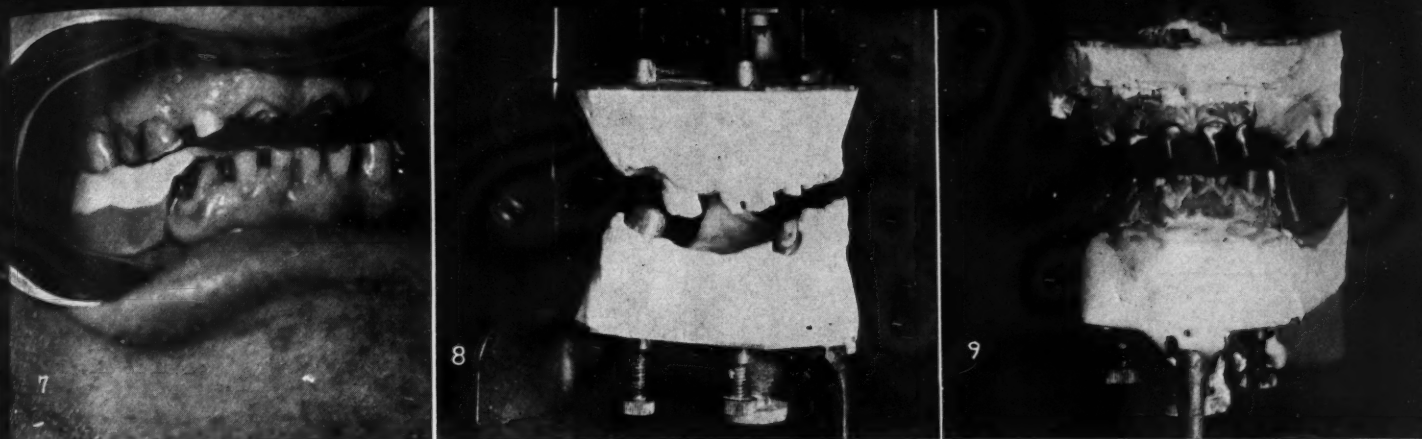


Fig. 7—Bite plate in position with more of the upper teeth being treated.

Fig. 8—Amalgam dies in position for the cast crown (right side).

Fig. 9—Position of the upper model on the articulator is obtained as follows: With all the castings in position in the mouth and with the lower vulcanite bite plate in position, sections of vulcanite having been cut out to allow for these castings, the anterior check bite of modeling compound is made. This is chilled, the vulcanite bite plate is then removed from the mouth, and, with the anterior check bite in position as a guide, the right and left posterior wax bites are made. These are placed in position on the models, as this photograph shows, and the articulator is set to that opening.

6. The age of the patient is considered as well as his physical condition and his mental attitude toward bite raising. All these factors are carefully studied; it is usually best to allow two or three weeks for this study.

7. After this study if I feel that I can honestly offer the patient enough to make it worth while for him to undergo the procedure and incur the expense, I then start the actual work of raising the bite.

DESCRIPTION OF ARTICULATOR

The articulator that I have been able to use effectively in this work is called "The Balancer." The theory of this articulator is based on the fact that the mandible functions in an arc laterally and protrusively, provided it has no tooth interference. In time, this arc is changed from one of ideal occlusion to one of malocclusion, owing to extractions and other tooth disorders; but the mandible will function in an arc if released from intercuspation. The mandible swings from a central relation, and the lateral and protrusive movements are approximately the width of the tooth. The arc is about 4 inches from the theoretical point of rotation. The square type of arch generally presents a shallow occlusal arc, with a 4 inch radius and a minimum overbite. The ovoid type presents an occlusal arc with a 3 inch radius and a slight overbite. The tapering type of arch presents an occlusal arc with a 2 inch radius and a considerable overbite. The lower model is so mounted that it is permitted to swing in an arc in the following manner: By replacing the disc that controls the arc by the upper model, the upper cusp relationship will act as a limitation and guide path to the arc. The results will correspond to human jaw movements. This, in brief, is a description of the principles of the articulator.

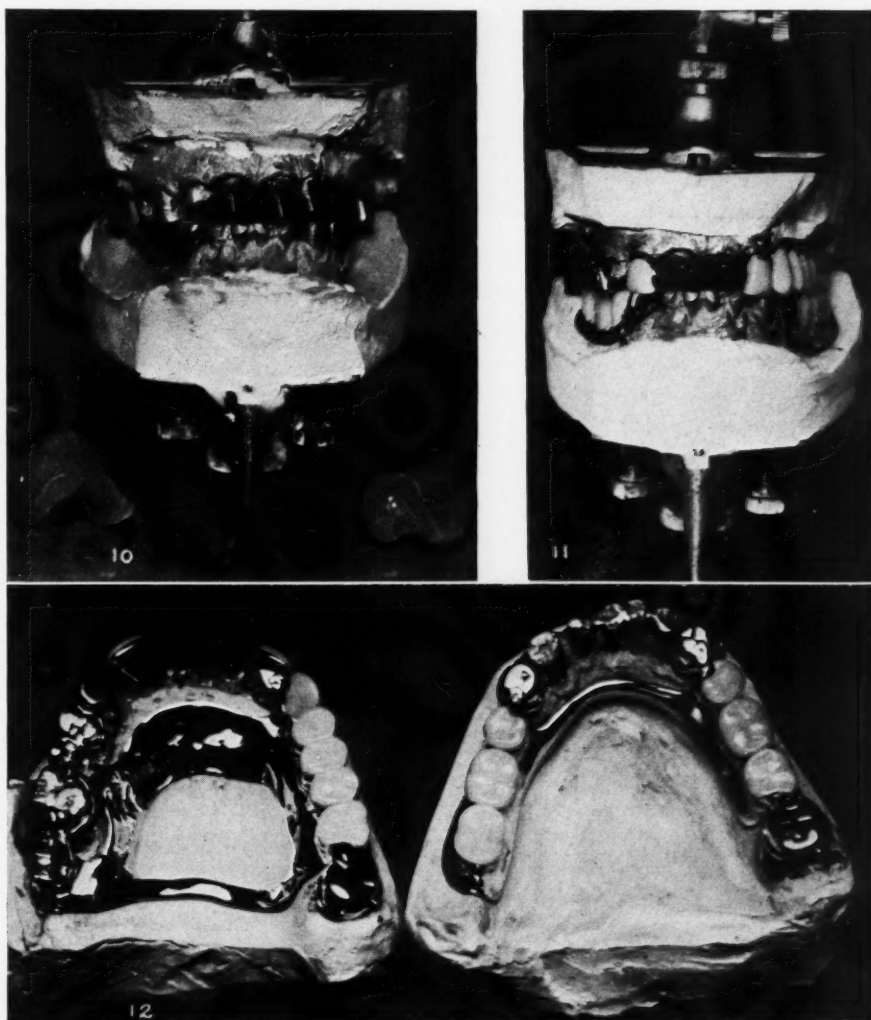


Fig. 10—Articulator set with all the castings in position. The wax transfer bites are lying down.

Fig. 11—Lower case constructed to conform as far as possible to the arc of the disc. With the upper abutments again in position in the mouth, the lower case was tried in the mouth and the discrepancies of the bite were directly corrected. A new upper impression was taken and the transfer to the articulator was easy this time, because the teeth now acted as landmarks. The upper case was then constructed to conform to the lower and also to conform to the lateral and protrusive movements of the articulator. This movement was obtained by opening the two upper screws. This photograph shows everything assembled except the two anterior teeth.

Fig. 12—Occlusal views.



Fig. 13—Anterior view of the mouth with everything assembled. Note the slight overbite. This had to be further reduced, particularly on the left central.

Fig. 14—Finished case.

Fig. 15—Comparative face masks, taken before the case was started and after the case was finished.

Fig. 16—Finished models.

REPORT OF CASES

CASE 1—The legends accompanying Figs. 1 through 16 are adequate to explain Case 1. The patient is still under observation to see that there is no particular strain on any tooth. The strain must be distributed evenly on all abutments.

CASE 2—A woman, in her late forties, presented herself for treatment for a complete closure of the bite (Fig. 17). This condition, I believe, was entirely due to the failure to replace posterior teeth which had been extracted at an early age. Lacking this support the facial muscles had collapsed, causing deep furrows to form in her face and aging her considerably in appearance (Fig. 18).

Roentgenographic Examination—The series of roentgenograms which were taken at once indicated the necessity for extracting the upper left cuspid, second bicuspid, and second molar.

Extractions—The first two teeth were extracted at once, but it seemed advisable to postpone the removal of the last tooth until the bite was held open by a temporary bite plate.

Treatment—1. The temporary bite plate was constructed first of wax and tried in the mouth until the correct height for the bite had been established. It was then vulcanized, with gold occlusal cusps, and introduced into the mouth (Figs. 19 and 20).

2. The number 1 disc was used as an arbitrary arc. Onlays were made for all the lower posterior teeth with the exception of the left first and second molars, for which cast crowns were prepared to conform to it (Figs. 22 and 23). The lower anterior teeth were also aligned with the disc by grinding.

3. In the mouth, as usual, we were able to substitute the template for the disc. The slight discrepancy was corrected later by taking an impression of the mandible with the onlays in position, pouring a model, and placing it on the articulator.

4. A lower left inlay bridge was created by resting a lock lug in the bicuspid inlay and soldering a pontic to the first molar cast crown. The right side was carried back only as far as the first molar, so that the patient would not be inconvenienced by a lower removable restoration because of one missing tooth (Fig. 24).

5. With the lower onlays and crowns assembled in position but not cemented, the upper right second molar and the upper left molar were built up to the articulation by means of cast crowns. Lug seats were prepared in the mesial and distal surfaces of the left molar crown and in the mesial surface of the right molar crown.

6. A palatal bar case was then cast, these three attachments being used,

Fig. 17—(Case 2) Complete closure of bite before work was begun.

Fig. 18—Facial contour before work was started. Note deep lines about mouth and flabbiness of chin.

Fig. 19—Temporary bite plate upside down.

Fig. 20—Temporary bite plate in position.

Fig. 21—A, Mouth before work was started; anterior view; B, mouth with temporary bite plate in position; C, mouth as restored.

Fig. 22—Onlays on lower model as they have been built up to the number 1 disc of the articulator; right side.

Fig. 23—Lower left inlay bridge and cast crowns as they have been built up to the articulator.

Fig. 24—Upper bridge and lower onlays in position on articulator; right side.

Fig. 25—Upper bridge, lower bridge, and crowns in position on articulator; left side.

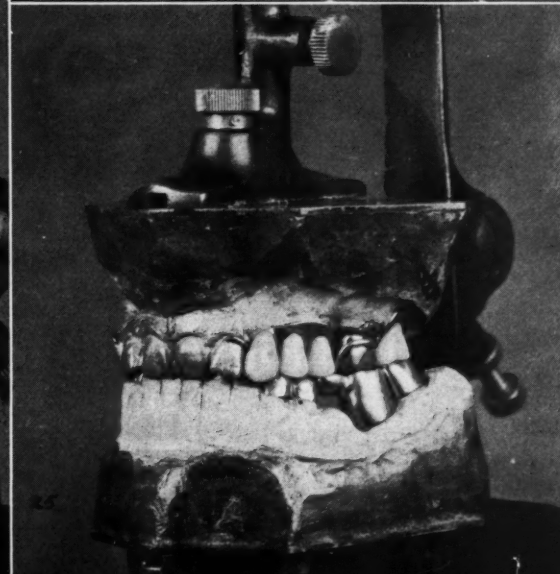
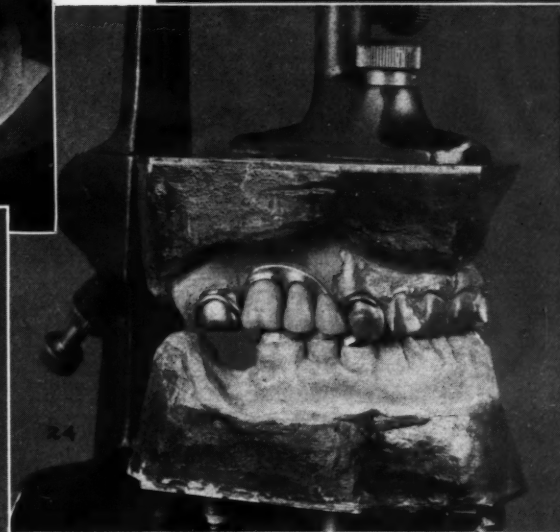
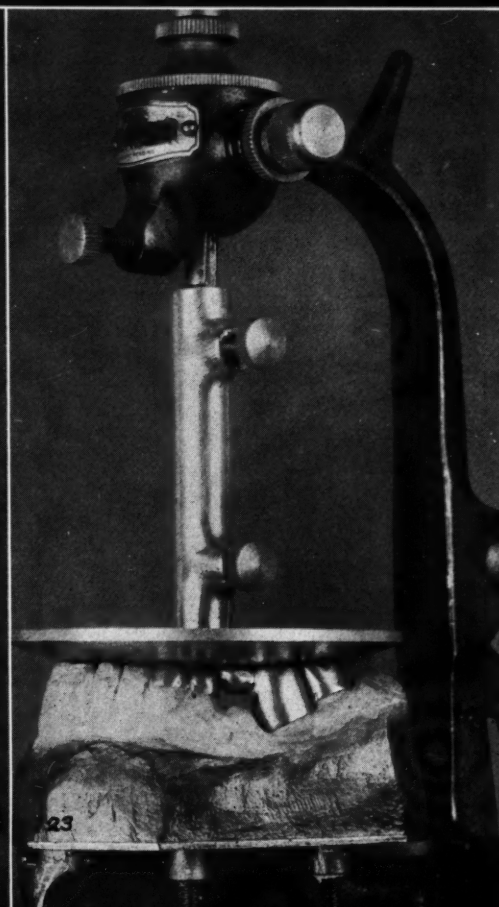
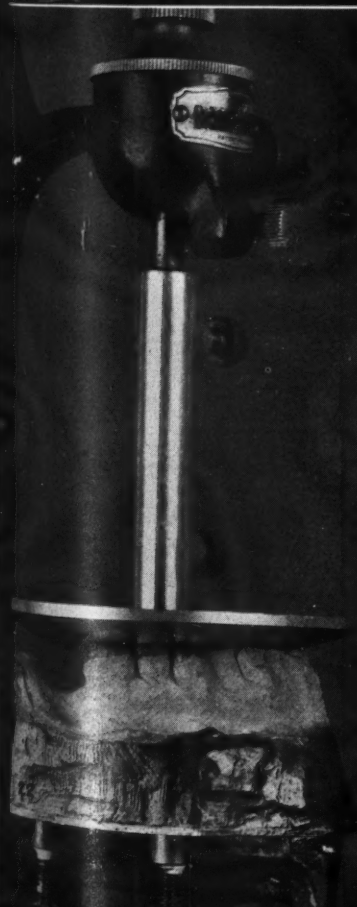
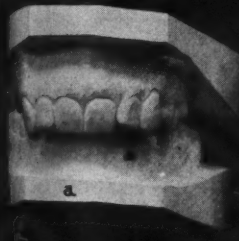
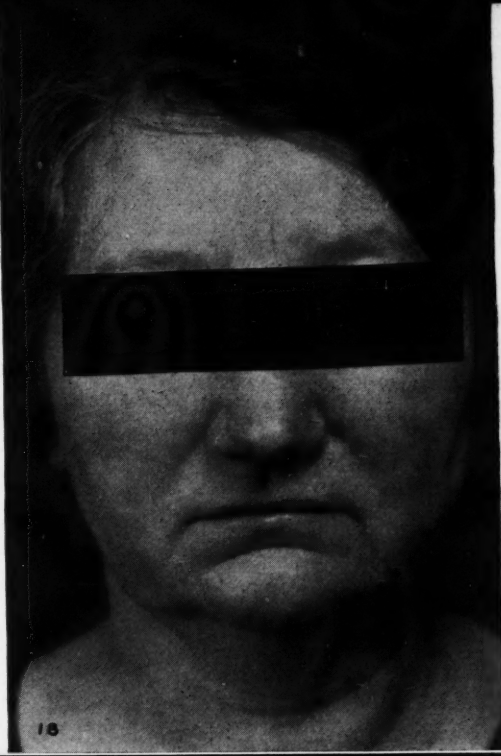


Fig. 26 (top)—Extent to which the bite had been raised at completion of case.



Fig. 27 (bottom)—Facial contour at completion of case. Note softening of lines about mouth and firmness of chin.



with clasps on the right cuspid and second molar and on the left lateral and first molar, and rests on the right cuspid and left lateral.

7. The onlays and bridges were not cemented in separately as they were completed. Instead, the temporary restorations were kept beneath the temporary bite plate until the entire case had been finished mechanically. At that time, the lower onlays, cast crowns, and fixed bridge, and the upper cast crowns were cemented, and the upper removable bridge was inserted, in that order.

Comment—When the original models were examined, it appeared that the right bicuspid and molar would have to be cut down considerably. A study of the case on the articulator revealed that actually these teeth had to be built up to the arch (Fig. 22).

This completed case has given the patient a normal occlusion (Fig. 26), an excellent biting surface, and a far more youthful and attractive appearance (Fig. 27).

730 Fifth Avenue.

RESTORATIVE PROSTHESIS*

JOSEPH E. SCHAEFER, M.D., D.D.S.

Chicago

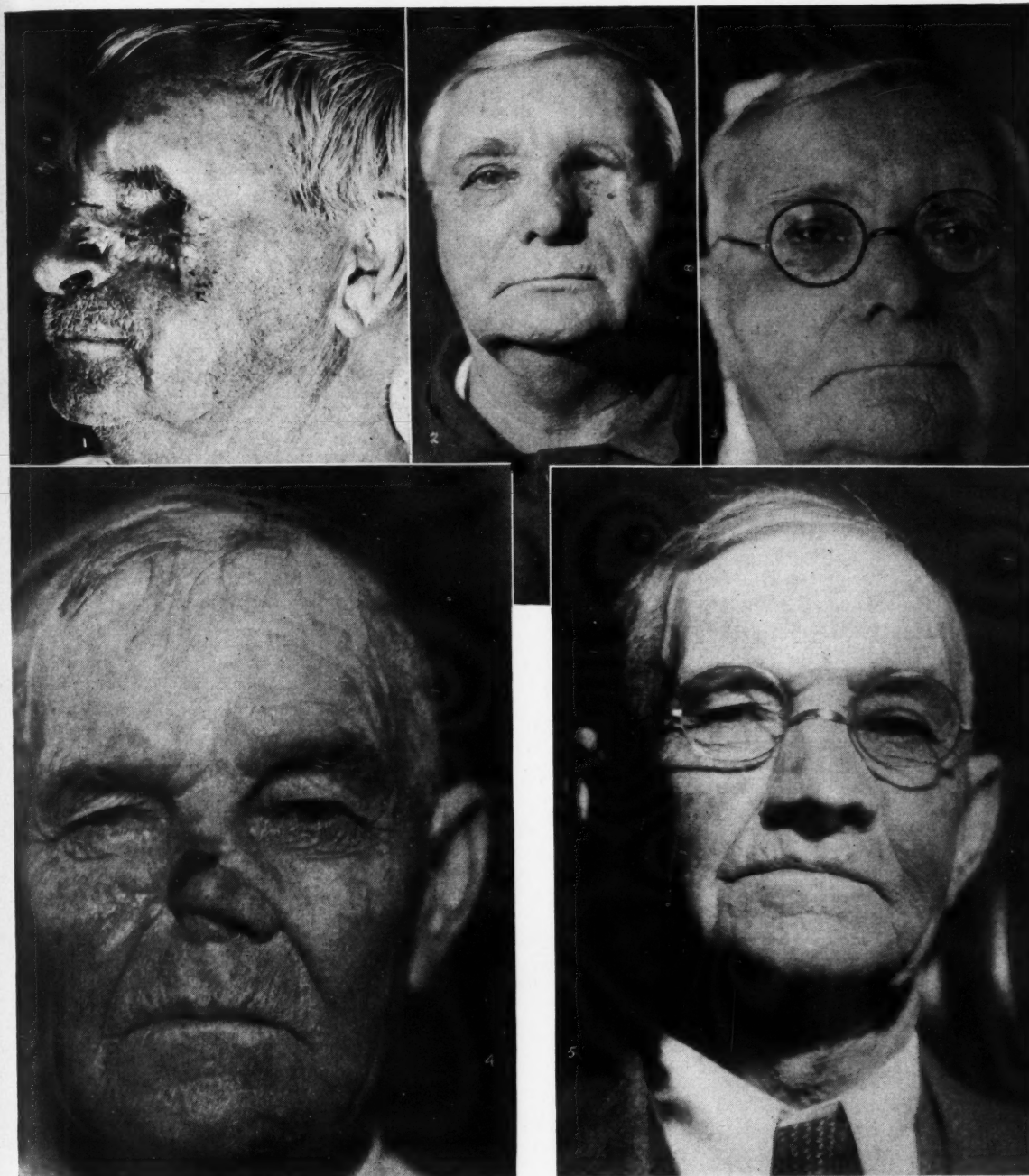


Fig. 1—Note complete destruction of eyelids and perforation of nose. Fig. 2—Plastic repair of nose. Fig. 3—Orbital prosthesis held in place by glass frames. Fig. 4—Note nasal defect. Fig. 5—Nasal prosthesis.

RESTORATIVE prosthesis is a distinct field that falls within the province of den-

*From the Division of Oral Surgery, Cook County Graduate School of Dentistry.

tistry. Dentistry utilizes plastic materials, which, when combined with a little imagination, can be adapted to the construction of such things as artificial noses, artificial ears, arti-

cial eye settings, and face masks.

Often, because of the age of the patient or the partly devitalized tissues, owing to excessive irradiation either through the use of the roent-

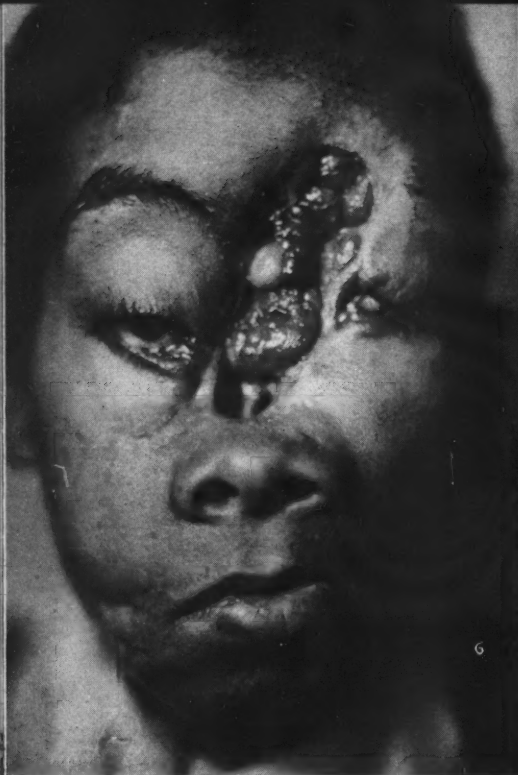


Fig. 6—Note polypi mass in nose.



Fig. 7—Note salivary fistula.



Fig. 8—Prosthesis held in place by glasses.

gen ray or radium therapy, it is inadvisable to resort to plastic surgery. In such cases restorative prosthesis may well be applied.

REPORT OF CASES

CASE 1—The patient presented with a basal cell epithelioma involving the eyelids and the side of the nose. There was complete exenteration of the orbit with perforation of the side of the nose (Fig. 1).

The perforation of the nose was closed with a pedicle flap, and a plaster impression was taken of the orbital cavity (Fig. 2).

A wax pattern was carved of the upper and lower eyelids, with an artificial eye in place. The artificial eye was removed from the wax model posteriorly and the wax pattern duplicated in vulcanite rubber. The

55 East Washington Street.

rubber was finished and painted to harmonize with the skin colorings. The artificial eye was inserted into the prosthesis and cemented to place. The prosthesis was attached to the patient's glasses. Note the natural appearance of the eyelids and artificial eye (Fig. 3).

CASE 2—The second case was that of a controlled epithelioma with destruction of part of the nose (Fig. 4).

The pattern for the nose was carved on a plaster cast of the face. The pattern covered the entire defect.

The wax model was reproduced in vulcanite, painted, and held to place by glasses (Fig. 5).

CASE 3—The patient had a gunshot wound of the face. The nasal cavity was filled with polypi tissue, and there was a salivary fistula in the cheek (Figs. 6 and 7).

The salivary fistula was closed by a three-ply arrangement of sutures; the mucous membrane was closed first, the deep subcutaneous tissue closed second, and the skin closed third.

A water-tight joint was made to prevent recurrence of the fistula.

The polypi mass was cleaned out of the nose, the septum was removed, and a temporary prosthesis was made to cover the defect (Fig. 8). Later a plastic reconstruction of the nose will be done.

A MASTER MODEL TECHNIQUE FOR THE CONSTRUCTION OF INLAYS, CROWNS, AND BRIDGEWORK

E. E. BAILEY, D.D.S.

Denver

(Conclusion)

THE CONSTRUCTION OF AMALGAM DIES

The root-ends of amalgam dies are molded in metal die sockets, which later become their seats in the master cast. Copper amalgam is used for dies for the following reasons: (1) Its volume is more constant than that of most silver alloys. (2) It permits the pouring of the alloy directly onto its surface without danger of drawing mercury. (3) It is strong when properly worked, and (4) permits the packing of a large number of impressions with a single mix. (5) Copper amalgam is economical because it can be used repeatedly.

Copper amalgam should be triturated and ground for several minutes, plenty of mercury being used, in order to assure a plastic consistency. It is always placed on a cold slab before it is introduced into the impression, because if it is warm, it may distort the impression.

Construction of Dies (Fig. 12)—

1. A die socket, the approximate size of which is determined by the gingival construction, is positioned to the impression band and held in apposi-

tion by a flat strip of metal secured to each band with sticky wax.

2. The die socket should be parallel with the long axis of the tooth, at least 2 mm. of space being left between it and the impression band. The space is closed between the die socket and the impression band with a wrapping of thin wax.

3. This is invested in a paper ring filled with thin plaster, one-sixteenth inch of die socket being exposed to facilitate packing. Setting of the plaster should not be accelerated, as heat might distort the impression.

4. Copper amalgam is used for filling, large pieces being pressed in the mold and jarred to place. When the impression is filled to the top of the die socket, cotton is placed over the amalgam, which is pressed firmly and jarred thoroughly to condense the die.

5. When the die is hard, the amalgam is smoothed, with a disc, between the impression band and the socket.

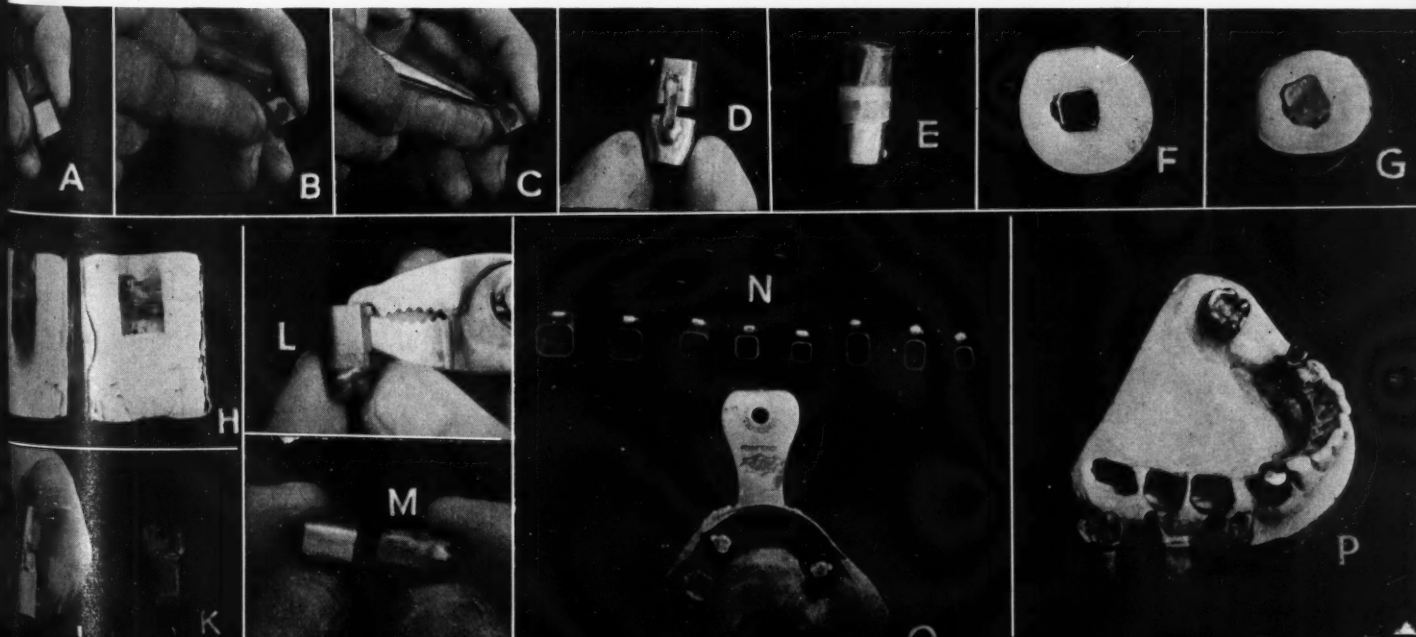
6. The die is thrown out of its socket with a die socket plier and is ready for construction of the transfer inlay.

THE FUNCTION AND CONSTRUCTION OF TRANSFER INLAYS AND CROWNS

In order to obtain a true transfer of dies to the master cast, it is necessary to have some definite way of knowing when they are accurately seated in the master impression. This is done by constructing transfer inlays and crowns directly on the dies and placing them in their respective positions in the mouth and securing an impression. The inlays and crowns will be removed with the impression. Dies with sockets in position are seated in their respective inlays and a stone cast is poured.

Transfer inlays should include all the coronal areas that are parallel to or convergent with the walls of the cavity. They should never have interproximal contacts to interfere with seating. This is prevented in the molding by grasping the paper matrix mesio-distally to narrow it in this diameter and widen it buccolingually. Occlusal surfaces should be large and concave, with sharp edges to enable the impression material to grasp and hold the pieces firmly. This shape is obtained when

Fig. 12—Construction of amalgam dies. A, Method of positioning die socket and impression band; B, placing drop of sticky wax on socket and impression band; C, thin strip of metal, heated and placed as shown; D, die socket and band in correct relationship; E, space closed between socket and band with thin strip of thin wax; F, plaster investment; G, mold filled with copper amalgam; H, split mold after amalgam has set; J, smoothing amalgam between socket and band; K, finished amalgam die; L, removing die socket with die socket plier; M, finished die with die socket removed; N, die sockets; O and P, use of die sockets in construction of master casts.



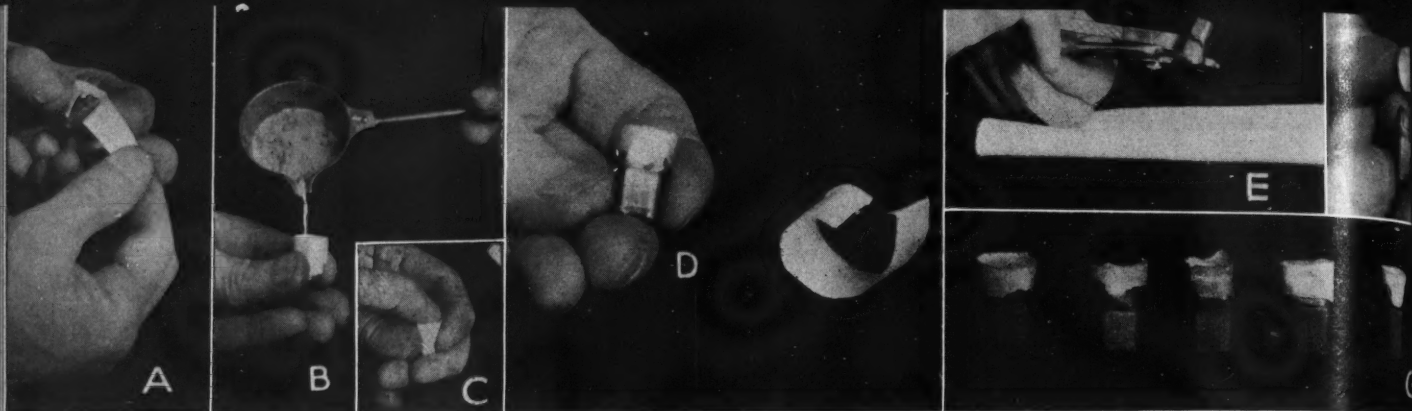


Fig. 13—Construction of transfer inlays. A, Wrapping paper matrix; B, pouring alloy; C, placing finger over metal and pushing to place; D, inlay immediately after molding operation; E, removing transfer inlay; F, large area transfer inlays should cover; G, transfer inlays as molded for combination compound-hydrocolloid master impression.

the finger is placed over the top of the paper matrix in pushing the metal to place.

All transfer inlays and crowns should be of uniform height. This uniformity is accomplished by uniform trimming of the paper matrix above the occlusal surface of each die. This permits the impression tray to come in contact with the sharp edges of the transfer inlays and crowns when the master impression is secured.

Construction of Transfer Inlay (Fig. 13)—1. The paper matrix is wrapped around the die and held with the thumb and finger, causing pressure mesio-distally.

2. The alloy is poured and immediately the finger is placed over the top of the matrix to confine the metal and force it to place.

3. The ball of the finger causes a concavity of the occlusal portion of the inlay and molds it flaring and sharp. If the operation has been performed correctly, the inlay should be ready for use.

Construction of Transfer Crown—

1. The die is wrapped with tinfoil, the occlusal surface being left exposed.

2. The paper matrix is placed and the alloy poured, casting being accomplished with the finger. It will be noted that the metal only forms the occlusal portion of the crown, which has been given the proper shape.

3. The tinfoil covering the side walls of the die is now closely adapted by burnishing; it is removed and trimmed to the gingival outline, replaced and adapted.

4. With a hot spatula, alloy is spread over the tinfoil to stiffen.

5. The same technique is used for three-quarter crowns except that the part of the tinfoil that covers areas not in the cavity is trimmed to the height of contour to prevent covering undercuts.

6. The inlays and crowns are po-

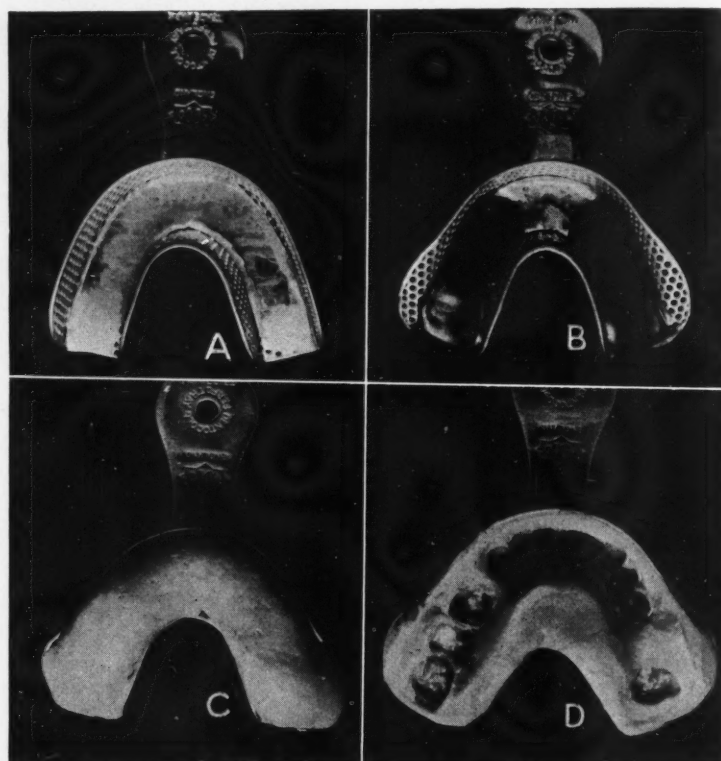


Fig. 14—Combination hydrocolloid-compound impression. A, Tinfoil fitted to floor of webbed tray; B, compound, black, placed over area which is to make contact with transfer inlays and crowns; C, hydrocolloid material placed over softened compound. The tray is introduced into the mouth and forced to contact with the occlusal surface of transfer inlays and crowns. This is chilled for three minutes with cold water. D, Finished impression with transfer inlays held in grasp of compound.

sitioned in the mouth and an impression is taken.

THE MASTER IMPRESSION

Owing to the difficulty in the use of plaster, I have developed an impression technique, which is giving excellent results and is easy. A combination black compound and a hydrocolloid material is employed.

Technique (Fig. 14)—1. A thin roll of black compound is heated to proper consistency, at the same time that the hydrocolloid material is being prepared.

2. The tray is heated; the compound placed so as to contact the transfer pieces, and the tray is at once filled with the hydrocolloid material over the softened compound. This is introduced into the mouth immediately and the floor of the tray is pressed to contact with the transfer inlays. It is important to seat the floor of the tray in order for the compound to displace the hydrocolloid material and grasp the inlays firmly.

3. Chilling with cold water for

three minutes makes the compound hard and brittle. A hydrocolloid material, of course, remains elastic.

4. The impression is removed. It will be noted that the compound has taken the impression of only the metal inlays and occlusal surfaces, the remainder of the impression having been taken in the hydrocolloid material.

5. The metal fittings will be held firmly in the grasp of the compound.

Seating the Dies in the Impression (Fig. 15)—1. The dies, with the sockets in position, are placed in their respective transfer pieces.

2. When the dies, with sockets in place are all in position, they are ready to be waxed firmly to place. As wax will not adhere to a hydrocolloid material, it is best to expose the compound toward the buccal and labial aspect of each die and fill in with wax, entirely covering the exposed coronal surface of the dies up to the margins of the die sockets. This will hold them firmly in their seats and at the same time will prevent the cast material from covering the undercuts and making their removal from the master cast difficult.

3. The impression is boxed and run in quick-setting hard stone.

4. To separate the impression from the cast, the floor of the tray is heated sufficiently to release the grasp of the compound on inlays, and the impression is removed.

First Removal of Dies from Master Cast—Die sockets have a coating of paraffin for lubrication, which should not be removed until this stage. Slightly heating the dies to soften the paraffin usually makes their first removal from the master cast easy. In case of difficulty, bur through back of the cast to contact the die. The sockets and root-end of the dies are cleaned with chloroform to remove the paraffin.

Checking Bridge Areas for Accuracy of Transfer (Fig. 16)—Checking the bridge areas for accuracy of the transfer is accomplished by making a bridge of the transfer inlays. A stiff flat bar of metal is heated and laid on the transfer inlays on each end of the bridge space, and, with a hot spatula, sealed tightly; thus a provisional bridge is obtained. This is removed from the cast and tried in the mouth for seating. This check is analogous to trying-in the finished bridge. If the transfer is correct, perfect seating will be accomplished with ease. If the transfer is faulty, this is the time to correct it.

Mounting Master Casts (Fig. 17)—We have stated that once the

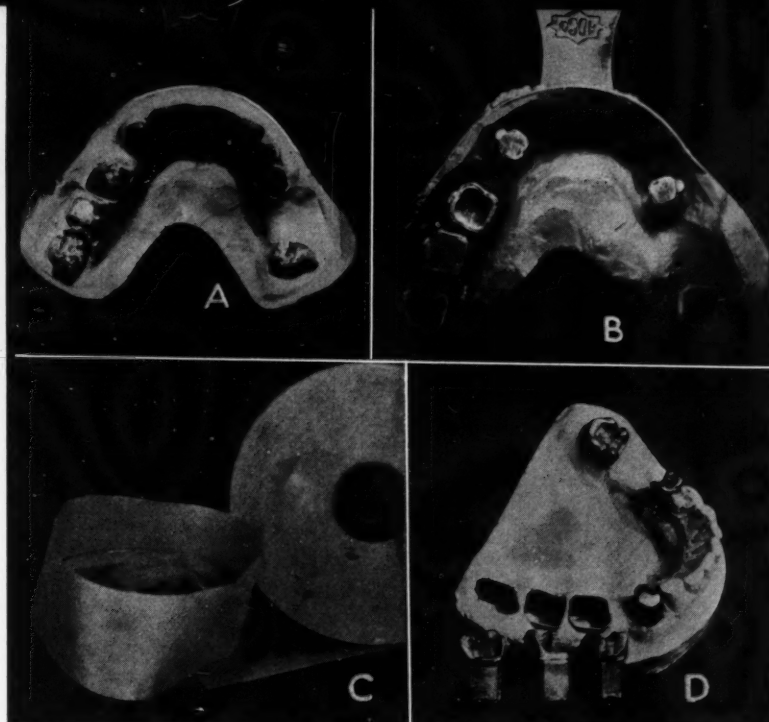


Fig. 15—Dies in impression and construction of master cast. A, Impression with transfer inlays in place; B, dies with die sockets in place seated in their respective inlays. The hydrocolloid material is scraped to expose the compound on the buccal and lingual aspect of the dies, which are waxed firmly to place. The wax should extend up to the gingival margin of the die sockets; C, boxing with package sealing paper; cast poured with quick-setting stone; D, completed master cast. Die sockets have a coating of paraffin for lubrication. Heating the dies slightly to soften paraffin makes the first removal from master cast easy. Sockets and dies are cleaned with chloroform.

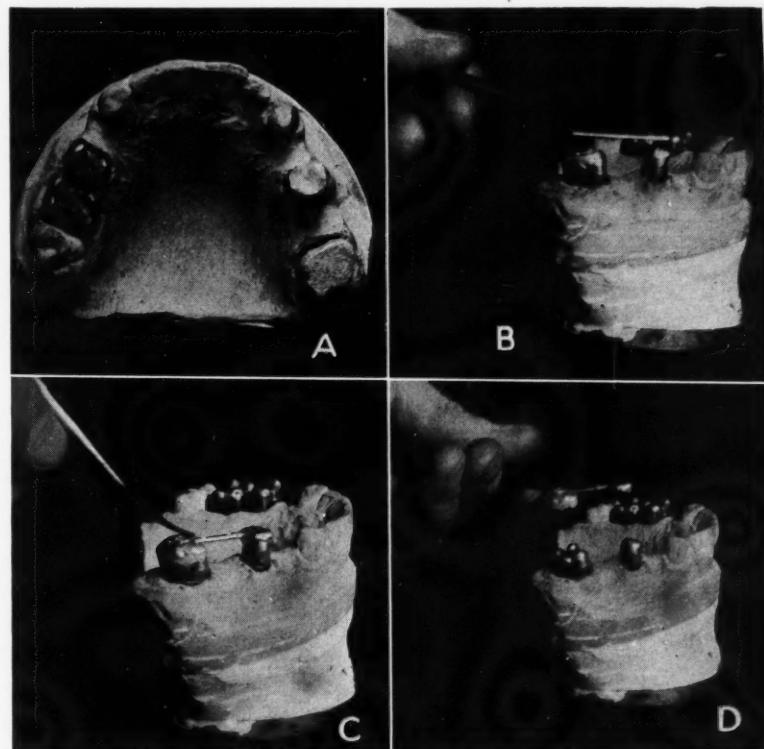


Fig. 16—Checking bridge areas for accuracy of transfer. A, Occlusal view of master cast showing transfer inlays in position on one side; B, stiff flat bar of metal heated and fused into inlays; C, alloy added with hot spatula to make union firm; D, bridge removed from cast for trial in mouth. This is analogous to trying-in finished bridge and confirms accuracy of transfer.

study casts are mounted in the working position and an occlusal positioning guide is made, no further registration of centric occlusion is necessary from the patient. The master model being completed, it is placed to position in the occlusal positioning guide, and mounted to the opposite study cast.

CONSTRUCTION OF THE CASE

1. Master casts containing dies of all teeth to be restored have been mounted and the articulator has been adapted (Fig. 18). The incisal guidance now becomes a factor in coordinating the occlusal surfaces.

2. The anterior-posterior plane has been set to the correct overjet, and the lateral tables have been adjusted to produce cusp height in accordance with the age of the patient.

3. The vertical height between the arches has been increased and the consequent space is to be occupied with restorations.

In most cases it is good mechanics to divide equally the spaces between the arches. This distributes equally the lateral stresses, which have been increased by the additions to the vertical length of the crowns. Any rule in connection with establishing the compensating curve must be flexible, as the type of case being treated will be the deciding factor. If good margins, well-shaped tight contacts, and properly designed occlusal surfaces

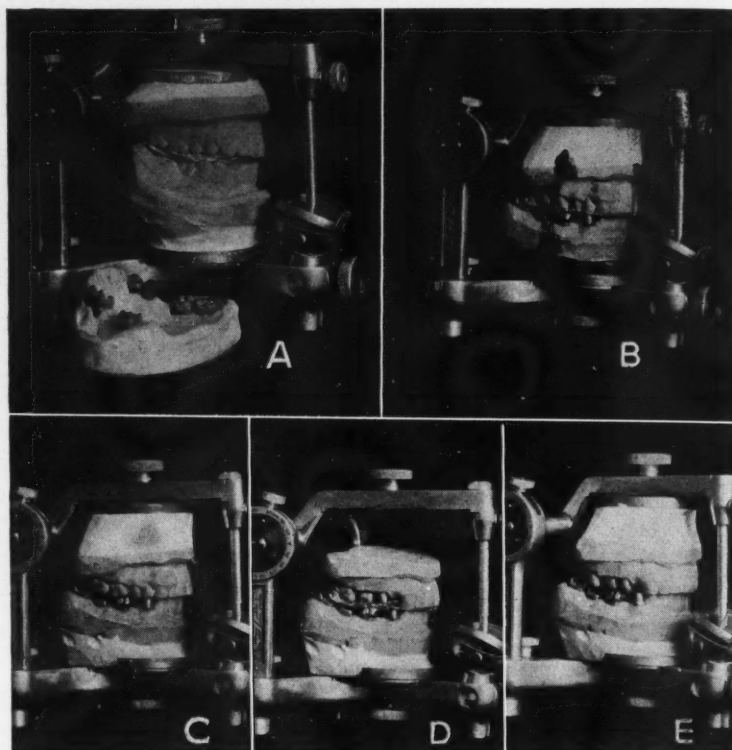
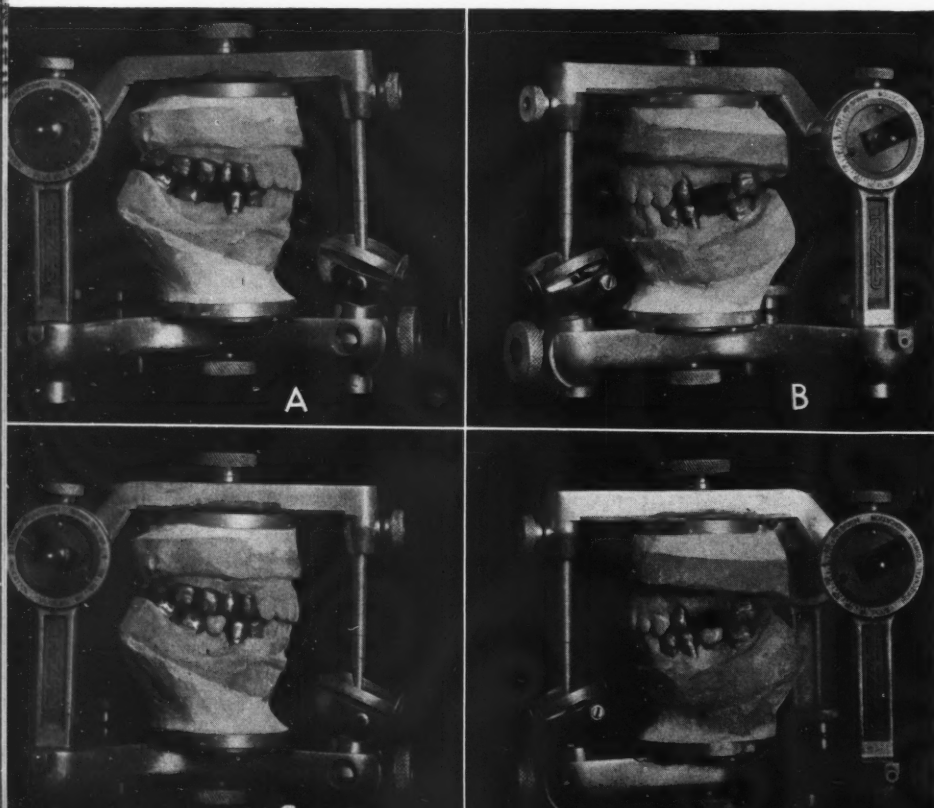


Fig. 17—Mounting master casts with occlusal positioning guide. A, Study casts in position of diagnosis, with occlusal positioning guide in place; mandibular master cast ready for mounting. B, Study cast removed and master cast occupying its position; C, mandibular master cast mounted in position found at diagnosis; D, maxillary master cast occupying position of upper study cast in occlusal positioning guide; E, master casts occupying position of study casts. Incisal guidance set for correct cusp height.

Fig. 18—Constructing case. A, Right view of master casts; B, left view of master casts; C, right view after building up with wax; D, left view. Pontics are built along with patterns.



are provided and coordinated with the movements of the mandible, good results will be obtained.

4. All dies are lubricated with cocoa butter. Building of the wax pattern of the lower arch is begun.

5. A template will assist in gaining the correct compensating curve (Fig. 19).

6. The occlusal surfaces are carved, the cusp height being established as planned.

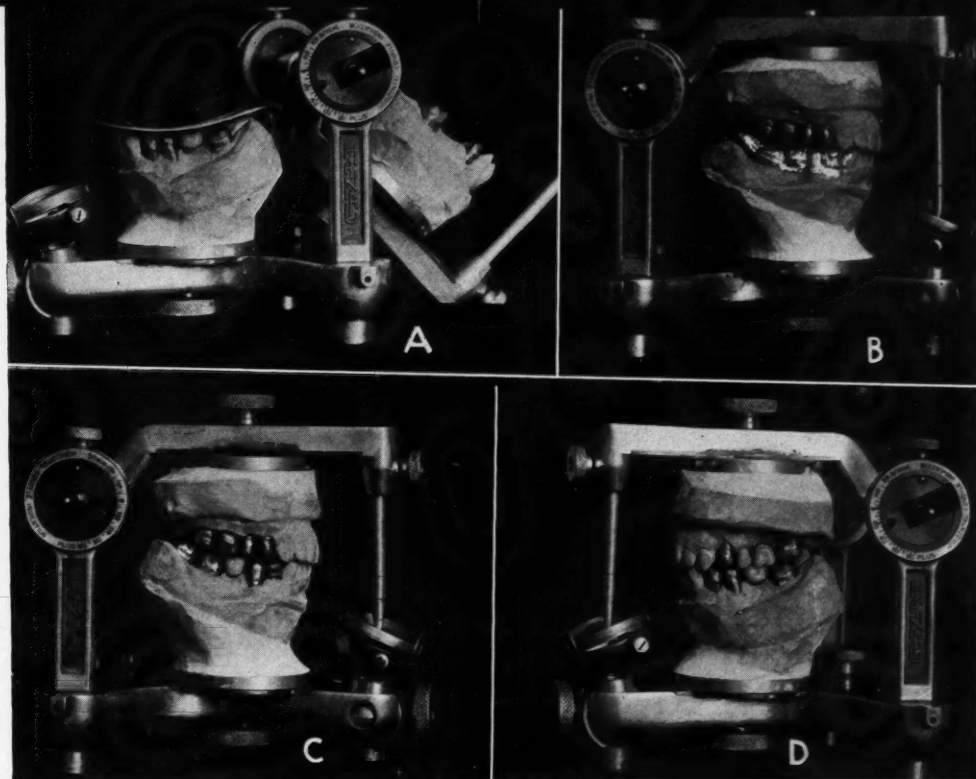
7. If bridge areas exist, pontics are built along with the waxing operation.

8. The patterns in the lower arch are covered with thin tinfoil, well-adapted, thus protecting the carving and giving a metal surface against which to mold the opposite patterns.

9. The tinfoil is lubricated and the waxing begun in the upper arch. A first molar is constructed to form, the occlusal portion softened and carefully closed to centric relation. This will mold it to fit the lower carvings and be a starting point for finishing a correctly designed occlusal surface. This procedure is continued until all are completed.

10. The tinfoil is removed from the lower wax.

Fig. 19—Constructing case. A, Use of template in establishing compensating curve; B, lower patterns covered with thin tinfoil and lubricated with cocoa butter; C, right view with patterns completed; D, left view with patterns and pontics in wax.



11. The movements of the mandible are now carefully reproduced and registered on the wax.

12. When the best possible coordinated occlusion has been established, the operator is ready to cast the patterns of one arch. To secure good contacts, it is advisable to finish all other patterns, cast, and polish

contacts, thus having the advantage of forming the remaining contacts against polished metal.

13. The patterns of the opposing arch are perfected with the benefit of the finished lower.

14. When the teeth are all in place on the instrument, they are spot-ground until the guide-pin follows

the incisal guidance without interference.

15. The case is ready for adjustment in the mouth.

16. No matter how carefully each step has been checked, there will be contacts to be adjusted; occasionally tension in a bridge to be corrected, and always a final coordination of the occlusion in the mouth.

1124 Republic Building.

ANNOUNCEMENT OF BOOKS RECEIVED

- CLINICS IN RESTORATIVE DENTISTRY (Illustrated), By Elmer S. Best, D.D.S., Minneapolis, Dental Library, Bureau of Engraving, Inc., 1935.
- TABLE TALKS ON DENTISTRY, By Rodrigues Ottolengui, M.D.S., D.D.S., LL.D., Second Edition (Testimonial Book), Brooklyn, New York, Dental Items of Interest Publishing Company, Inc., 1935.
- PRACTICAL ORTHODONTIA (Illustrated), By Martin Dewey, D.D.S., M.D., Revised by George M. Anderson, D.D.S., Fifth Revised Edition, St. Louis, The C. V. Mosby Company, 1935.
- CLINICAL DIAGNOSIS OF DISEASES OF THE MOUTH (Illustrated), By Louis V. Hayes, A.B., D.D.S., Brooklyn, New York, Dental Items of Interest Publishing Company, Inc.; Great Britain, Henry Kimpton's Medical Publishing House; 1935.
- PRACTICAL DENTAL ANATOMY AND TOOTH CARVING (Modern Dentistry Series, Illustrated), By J. R. Schwartz, D.D.S., Brooklyn, New York, Dental Items of Interest Publishing Company, Inc.; Great Britain, Henry Kimpton's Medical Publishing House; 1935.
- QUARTERLY CUMULATIVE INDEX MEDICUS, Volume 17, January-June, 1935, Chicago, American Medical Association, 1935.
- THE NATIONAL FORMULARY, Sixth Edition (Official from June, 1936), Washington, D. C., American Pharmaceutical Association, 1935.
- MEYER'S NORMAL HISTOLOGY AND HISTOGENESIS OF THE HUMAN TEETH AND ASSOCIATED PARTS (Illustrated), Translated and Edited by Herman R. Churchill, D.D.S., Dr. Med. Dent., Philadelphia, J. B. Lippincott Company, 1935.

The Editor's Page

"THE point I am trying to make is this: we are always *too late*; we are late when we think we are early because our minds run in what I will describe as the morbid anatomy groove." In the second edition of his book on THE PRINCIPLES OF DENTAL MEDICINE, Broderick¹ ascribes this quotation to Sir Pendrill Varrier-Jones who made the statement in an address on tuberculosis. This quotation can equally well be applied to the problem of dental disease. The point of view of dentists in their training and in their practice has been concentrated on the treatment of morbid anatomy. Every time we excise tooth structure in the treatment of caries, we are treating a condition that has developed too far and our attack is too late; every time we treat periodontal disease by any method, we are likewise treating a condition that has progressed too far and we are too late. This is no statement of futility or disparagement. We do the best we can in the treatment of disease because to date we know so little about methods of prevention. We are, of course, going to continue to perfect our techniques of surgery and of reconstruction, awaiting the day when we can discover specific methods of prevention.

Broderick offers no panacea for the prevention of dental disease. The value of his book is in the suggestion that the solution to the riddle of dental disease is to be found in the broad fields of biology, organic chemistry, and fundamental physiology. In the search for first causes, we must look in the biologic world, and the causes we find must stand the test in the crucible of human experimentation. As Von Beust put it, "Our present theorem was born in a test-tube; it will die, I believe, in the mouth."

Generally speaking, our point of view has been devoted entirely, as the dental degree suggests, to surgery. By mechanical means we treat disease of human tissue. We restore and reconstruct lost parts, which is essentially the surgical procedure. Within recent years there has been an encouraging shift toward the biologic approach to an understanding of dental disease. During this period vitamins and metabolism and endocrines have finally emerged from the fog of physiologic theory to become a part of clinical thought. Broderick's second edition

of his book on dental medicine is another high point in the changing concept of dentistry. In this book the author attempts to explain the causes of dental disease in general physiologic terms and he attempts to integrate our knowledge of dental disease with our knowledge of systemic disease. Unlike other books that try to present the fundamentals of dental medicine, Broderick's text is not condescending. He does not "write down" to dentists. The book is not flimsy; it is not superficial; it is not pontifical.

Although Broderick's presentation of biologic fundamentals is sound and convincing, he provokes some skepticism regarding his methods of treatment: From a reading of his case reports he would seem to be guilty of over-treatment and heavy medication. There is a hint of shotgun prescribing in the assault of the body with the following heterogeneous types of therapy: "colonic lavage, subcutaneous injections of oxygen, contramine and calcium injections, with iodine, ichthyol and thyroid internally." This array is open to serious objections.

With Alexis Carrel, whom we mentioned on this page last month, Broderick believes in the psychogenic factor in the causation of disease, even in the cause of dental caries. Cannon, for example, has repeatedly shown that emotional states have a profound effect on metabolism. Fear, anger, and anxiety cause changes in the metabolic processes. It is not impossible that these psychologic states can so affect metabolism as to be a factor in the production of dental disease.

Broderick emphasizes that it should be the aim of dentists and physicians alike to correlate as well as to differentiate symptoms. In other words, we should try to see the expressions of dental disease as symptoms in the chain of biologic dysfunction. In support of this contention, Broderick paraphrases McDonagh's conception of disease: "... as soon as we begin to correlate, rather than to differentiate, symptoms, we see that, fundamentally, there is only one disease, though there are many end-points; and that from a complete knowledge of one disease the whole of medical pathology can be understood." To fit the expression of the end-points of disease, caries or periodontitis, into the pattern of biologic dysfunction is the challenge to the intelligent dentist.

¹The C. V. Mosby Company, St. Louis, 1936.

SURGICAL FLAP AND SEMIFLAP TECHNIQUE IN PERIODONTAL SURGERY

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Montgomery, Alabama

FOR centuries the problem of relief and cure in periodontal inflammations has depended on therapeutic agents. Within recent years, however, the value of medical remedies as a dependable curative measure has been disproved, and today we no longer rely on drugs alone to cure disease. The trend of thought and practice among dentists who treat periodontoclasia has drifted more and more toward radical surgical technique.

The practice of surgery in the eradication of periodontal infections is by no means new; it was used to some extent, and with encouraging success, as far back as two hundred years ago. Periodontal surgery did

not become popular, however, until the discovery of anesthetics possessing innocuous and dependable properties. These discoveries made periodontal surgery both possible and practicable.

METHODS

There are only three practicable methods of approach in the surgical treatment of periodontal disease: (1) conservative subgingival curettage; (2) gingivectomy, or gum resection; (3) the gingival flap operation.

Subgingival curettage is best adapted and indicated in the early developing stages of the disease. Gingivectomy or gum resection is more practicable in the treatment of lesions found in the posterior areas

of the mouth; whereas the flap and semiflap operations have advantages when radical measures are indicated in the eradication of pathologic lesions developing in the anterior section of the mouth.

In practice, I follow all three techniques, and find that I can use each of them to advantage in almost every case I treat, as all three methods are indicated in the management of certain areas of the mouth in most cases.

PREPARATORY PROCEDURES

Diagnosis and History—Whatever method of treatment may be chosen, diagnosis will always be a paramount consideration. The patient's history is important informa-



Fig. 1—The Vastine method of premedication which is often indicated as a precaution in surgical treatment of the teeth, prior to operative procedure.

Place a drop or two of the germicidal agent in the rubber cup and adjust it to the side of the tooth, so that the edge of the cup extends slightly under the gingival margin. If the cup is held firmly, so that a vacuum may be maintained, and a pumping motion is used, it is possible to force the germicidal agent into the deepest recesses of the infected pocket.

For streptococcic infections, Doctor Vastine suggests 5 per cent mercuriochrome. For staphylococcic infections, acriviolet, from 1 to 2 per cent in solution with 0.5 per cent gentian violet. For Vincent's infection, he suggests arspenamine, from 25 to 50 per cent in mineral oil.

When there is evidence of all three types of infection, all three agents may be used, one following the other, the arspenamine being used last.

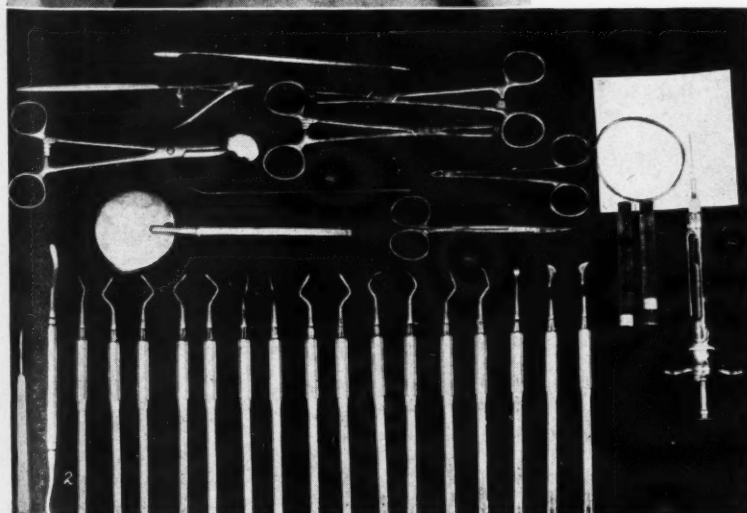


Fig. 2—Complete set of instruments used in the conservative technique suggested in the modified flap operation. These instruments are much heavier and stronger than the curettes usually suggested for conservative subgingival treatment, but are admirably adapted for use in radical periodontal surgery. They are designed to reach all the root surfaces and pocket areas and may also serve as bone curettes. In addition to these uses, these curettes are helpful in breaking up granulation tissue within the pockets and assisting in their removal.

tion; therefore, it is frequently advisable to cooperate with the physician in order to obtain all the facts.

Blood Examination and Urinalysis—A blood count, clotting time, blood pressure, heart examination, and urinalysis—all are necessary factors in diagnosis and treatment. Accurate information of this kind may often prevent postoperative complications and embarrassment.

Roentgenographic Examination, Transillumination, and Record-Keeping—A roentgenographic survey of the mouth, including bite-wing roentgenograms, are of value in diagnosis. Transillumination and probing the pockets to determine the depth of lesions are important. Permanent records of the location and depth of pockets should be made on charts to serve as a guide during the future course of treatment.

Prophylaxis—The first approach to treatment should consist in thorough prophylaxis. In some cases the prophylaxis should be repeated two or three times with a day's interval between visits. This will not only provide a more sterile field for surgical procedure but will often help to determine the patient's reaction to the surgical treatments to follow.

Preoperative Medication—In some cases preoperative medication is an important factor. There are patients who may be overcome with fear of the operation, and there are others who have an idiosyncrasy for procaine hydrochloride and epinephrine products.

A sedative, if administered about an hour before the anesthetic is given, will usually quiet the patient's nerves and overcome apprehension. I have found pentobarbital sodium in 1½ grain doses an effective agent for this purpose.

Asepsis—It is hardly necessary to emphasize the importance of observing aseptic precautions. The patient's face and lips, as well as all instruments and appliances that cannot be sterilized in the usual manner, should be sponged with alcohol. It should be fully realized that surgery in the oral cavity does not differ essentially from surgery in other parts of the body; therefore, the same aseptic precautions should be observed as in general surgery. All the instruments, sponges, and dressings used in the operation must be sterile, and the chain of asepsis must not be broken. The preoperative medication described by Vastine has given good clinical results (Fig. 1).

ARMAMENTARIUM (Fig. 2)

The problem of armamentarium was at one time a paramount factor

in the development of periodontal surgery. A short time ago, it was difficult, if not impossible, to obtain instruments and equipment suitable for this type of oral surgery; however, designers and manufacturers have overcome this obstacle, and today there is available a vast assortment of instruments well adapted to the various operative techniques now employed.

Clear Field—To provide an unobstructed view of the field of operation, the field must be kept free from blood and saliva. This may be accomplished by a well trained assistant with the aid of an aspirator and gauze sponges.

Lighting—Another important consideration is illumination within the operative field. In addition to the usual lighting equipment, a diagnostic lamp will prove helpful.

Instrumentation—There are innumerable instruments on the market suitable for the operative procedure. Almost any set of pyorrhea instruments of modern design may be used with success. For the sake of expediency, as well as economy, I prefer to use heavy spoon-shaped curets. Forks are necessary to retract the flaps and a few selected knives and shears complete the equipment. All instruments must be kept sharp.

Germicidal Bath—A germicidal bath, conveniently placed, as a receptacle for used instruments will often help to maintain asepsis. For this bath, I use germicidal discs of potassiummercuric iodide, which I find satisfactory and nonirritating.

TECHNIQUE (Fig. 3)

1. The modified flap operation consists in the separation of the interdental gingival papillae by making a horizontal incision through the center. This may be accomplished by passing a knife with a narrow blade in either the mesial or distal direction to divide the festoons into two mucoperiosteal flaps.
2. With a periosteotome, one flap is retracted labially or buccally, according to the location, and the other lingually. Both are retracted to a point slightly beyond the depth of the lesion.
3. With a fork the flaps may be opened wide enough to insure free movement of the instruments and provide an unobstructed view within the field of operation.
4. The pathologic granulations may be loosened with curets and removed with small shears and manicure nippers.
5. The exposed pockets and root surfaces should be sprayed with an antiseptic solution and the pocket

area dried thoroughly with the aspirator, sponges, and air blasts.

6. At this stage of the operation, transillumination with a diagnostic lamp and the use of a mouth mirror will expose to view any remaining deposits or pathologic granulations, which are then completely removed.

7. With completion of the operation, the flaps are coapted and the wound closed by passing a suture through the flaps in a labio-lingual direction. Only one suture is needed to close each interdental space. Where there is perfect contact of the flaps, suturing is not essential.

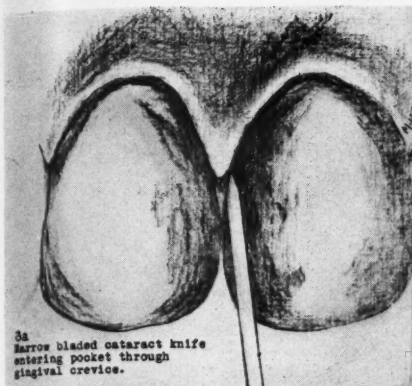
SEMIFLAP TECHNIQUE

In view of the fact that the lingual aspects of the teeth are more neglected by the average person in the observance of personal oral hygiene than the labial and buccal areas, these areas are obviously more susceptible to periodontal infections. It is not surprising, therefore, that we more frequently find deep seated lesions on this exposure of the teeth. It is in such cases that the semiflap operation is indicated.

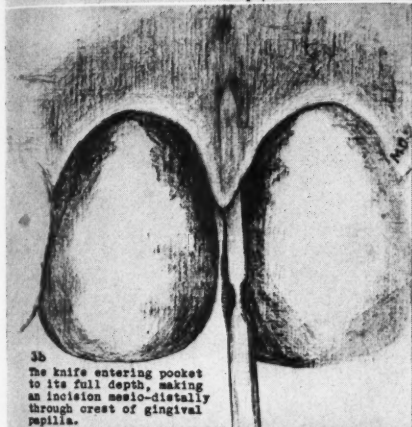
The usual incision is made through the interdental gingiva as if the double flap operation were to be done; the labial or buccal flap is retracted in the usual manner, and the gum resection, or gingivectomy, is followed in treating the lingual area.

When the operation is completed, the single remaining flap is pressed back into its normal position, and the surgical dressing is applied in the same manner as will be described in following the other methods.

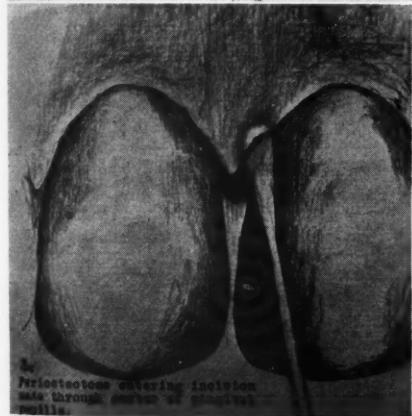
Fig. 3—A, Knife entering periodontal pocket through the gingival crevice. B, Knife is passed to full depth of pocket and an incision is made by cutting in either mesial or distal direction, separating the gingival crest. C, Lifting the flap with periosteotome. D, Periosteotome should follow the incision to full depth of pocket. E, As the flap is opened the granulations may be observed within the pocket. F, Flap fully retracted. Infected granulations being removed with nippers. G, Curetting infected bone and root surfaces without injury to the flaps. H, A view of the pocket after the pathologic factors have been removed. J, Flaps being sutured over clean healthy roots and bone surfaces. K, View of knot after closing flap with suture. L, The surgical dressing covering the areas involved in the operation.



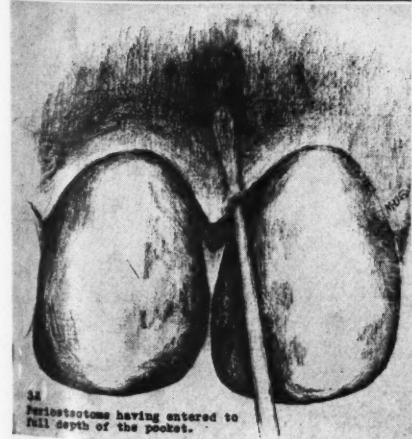
3a
Narrow bladed cataract knife
entering pocket through
gingival crevice.



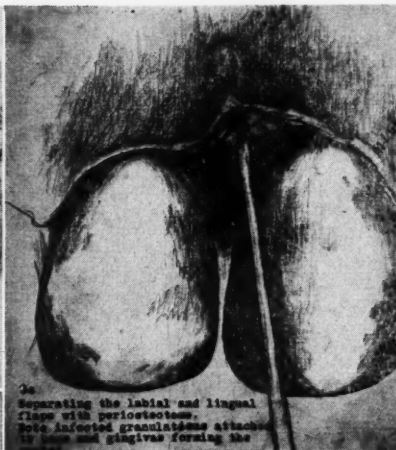
3b
The knife entering pocket
to its full depth, making
an incision mesio-distally
through crest of gingival
papilla.



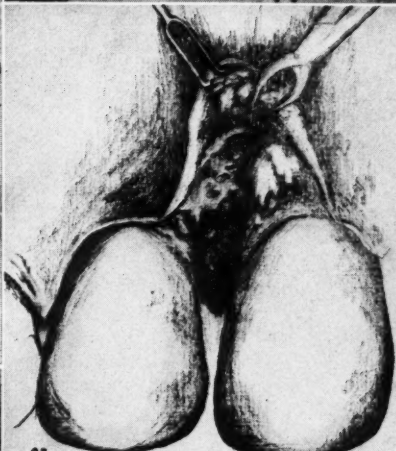
3c
Periosteotome entering incision
made through crest of gingival
papilla.



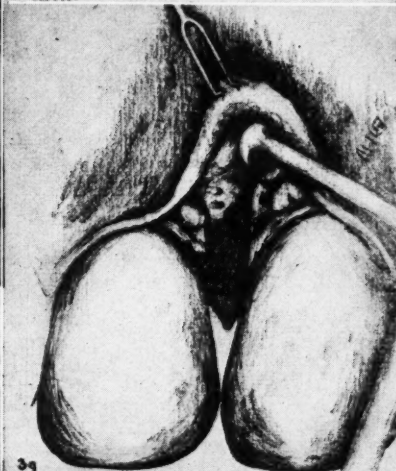
3d
Periosteotome having entered to
full depth of the pocket.



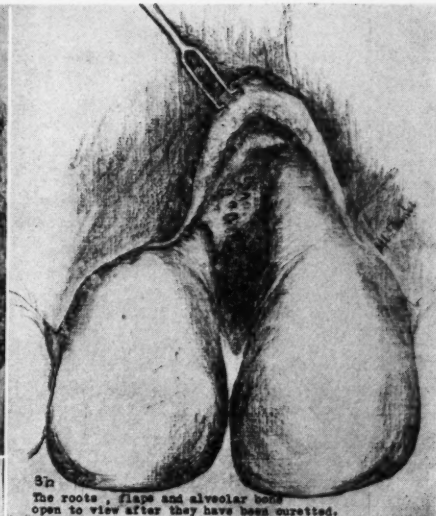
3e
Separating the labial and lingual
flaps with periosteotome.
Note infected granulations attached
to bone and gingiva forming the
pocket.



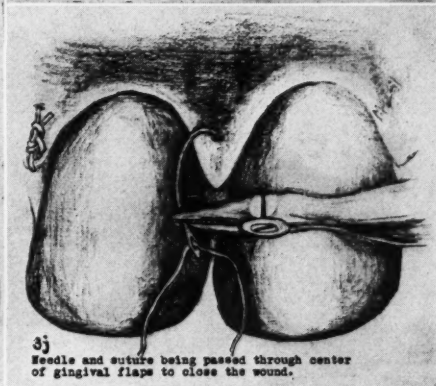
3f
Drawing the flap open and cutting away granulations
with nippers after they have been broken up with
curets.



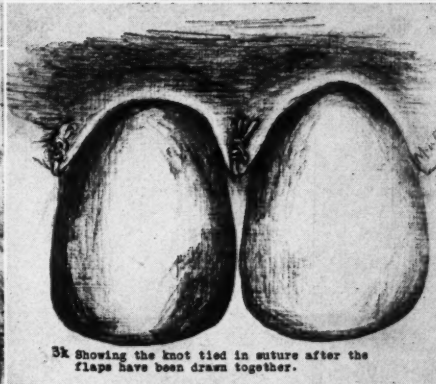
3g
With flap drawn open the infected bone and
root surfaces being curetted....
Note position of flap which gives them protection
from injury by curets.



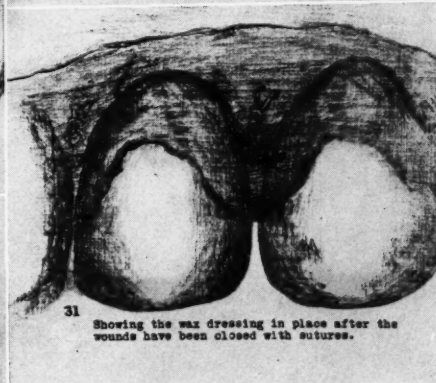
3h
The roots, flaps and alveolar bone
open to view after they have been curetted.



3j
Needle and suture being passed through center
of gingival flap to close the wound.



3k
Showing the knot tied in suture after the
flaps have been drawn together.



3l
Showing the wax dressing in place after the
wounds have been closed with sutures.

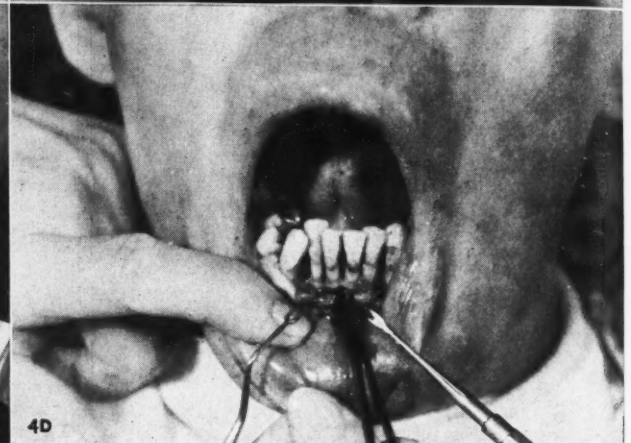
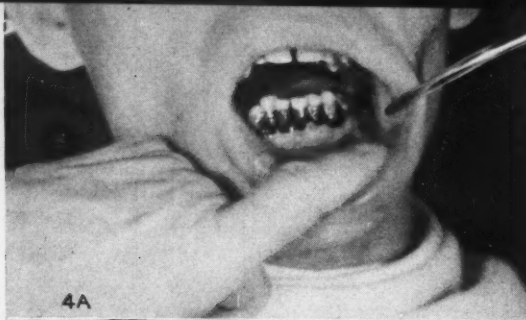


Fig. 4—A, A view of the patient's mouth prior to operation. B, Flaps retracted, disclosing extent of field of operation which extends from the right mandibular cuspid to the last tooth on the left side. C, Deep pocket between cuspid and lateral incisor; also it may be noted that there is an unobstructed view and free access of curets to all parts of diseased area. D, Removing granulation tissue with shears; note serual calculus on roots. E, After removing calculus and smoothing the alveolar process. Compare this with the preceding picture, and note how thoroughly the pathologic substances have been removed from the pockets. F, Operation completed, showing sutures through interdental papillae. Note the slight change in appearance of gingival outline. This is due to the protection this method provides to the gingival flaps. G, Necks of teeth and wounded surfaces sealed over with surgical dressing. This provides protection against injury and infection during the healing process. H, Twenty-four hours following operation. Note absence of swelling and inflammation. J, View of patient's mouth following removal of sutures, after healing has taken place.

Fig. 5—Use of rubber interdental stimulator, which may be used to advantage in promoting growth and health of interproximal gingivae following surgical treatment. The patient can easily handle this little instrument and should be encouraged to use it twice daily.

POSTOPERATIVE TREATMENT

Periodontal surgery would not be practicable if it were not for the surgical dressings suggested for the protection of the wounded surfaces.

I formerly used a combination of wax and rosin for this purpose, but find that the surgical cement pack has advantages. The cement has better sticking properties and gives the wounded surfaces more protection because of its germicidal properties.

After all the debris has been forced out of the operative area with an antiseptic solution, used in a pressure spray, it is advisable to make two or three applications of sterile cotton packs that have been dipped in hot physiologic saline solution. The packs are placed over the teeth and gums included in the operative area.

The surgical cement is mixed and applied as smoothly as possible over the gums and necks of the teeth. It should be applied in such a manner as to give complete protection to the wounded and exposed surfaces.

The dressing should remain on the teeth for ten days or two weeks.

COMMENTS AND CONCLUSION

1. I would not advise the treatment of more than one quadrant of the mouth at a time. In order to provide for mastication during the course of

treatment, it is advisable to complete the operations on one side of the mouth, and when that side has properly healed, proceed with the other side.

2. No matter how skillfully this disease may be treated, the results will not be permanent or satisfactory unless the patient has been properly trained in personal oral hygiene. The Charters method of toothbrushing which provides for interdental stimulation by wedging the toothbrush bristles into the interdental spaces and crowding them with pressure against the interdental gingivae is the ideal technique to follow. This method or any modification (Fig. 5) which provides gum massage and stimulation is indicated after surgery.

3. Surgery is the best known method for eradicating pathologic factors in the human body; consequently, periodontoclasia cannot be an exception to this rule as its etiologic factors are located in the supporting structures of the teeth.

4. When the principles governing surgical procedure have been observed in surgical periodontia; that is, correct diagnosis, asepsis, and complete eradication of the etiologic factors involved, there should be little if any doubt concerning successful results in surgical treatment of periodontal disease.

722 Shepherd Building.

AMERICAN DENTAL ASSOCIATION CONVENTION JULY 13-17

Hilltop vistas abound in San Francisco. From Neb Hill, the city below appears like a great bowl with the afternoon sun gleaming on spire-like buildings. Californians Inc. photo.





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ABOUT OUR CONTRIBUTORS

JEROME M. SCHWEITZER has his D.D.S. from the New York University College of Dentistry (1918) and his B. S. from the College of the City of New York (1927). Doctor Schweitzer is a member of the A. D. A. the First District Dental Society of New York, and an Associate Fellow of the New York Academy of Medicine; instructor in oral surgery, Columbia University, 1925; Vanderbilt Clinic, 1920-1926; special consultant in dental surgery, New York City Woman's Hospital since 1925; chief of staff, dental department, St. Luke's Hospital, New York, since 1928.

JOSEPH E. SCHAEFER received his D.D.S. in 1907 from the Chicago College of Dental Surgery; L.L.B. in 1913 from the Chicago Kent College of Law; B.S. in 1919 from the Lewis Institute, Chicago; M.D. in 1923 from Rush Medical College. Doctor Schaefer is a member of the American Medical and American Dental Associations. He is associate professor of oral surgery at Northwestern University and attending oral surgeon at Cook County Hospital. He is engaged in the practice of oral and plastic surgery. Doctor Schaefer is a frequent contributor to these pages.

E. E. BAILEY received his D.D.S. from the Kansas City Western Dental College, Kansas City, Missouri. Doctor Bailey is a member of the American Dental Association and has a general practice.

OLIN KIRKLAND, D.D.S. was graduated from the Atlanta Southern Dental College in 1902. Doctor Kirkland has previously contributed to the dental periodical literature and he was the author of a chapter in Mead's new textbook on Oral Surgery (1933). Doctor Kirkland is a member of the A. D. A. and component societies, the American Academy of Periodontology, and the Southern Academy of Periodontology, and a Fellow of the International College of Dentists. He specializes in periodontia.

FOCUS NO. 3

Retained root fragments are major foci of infection, often leading to systemic involvement.



Halt Systemic Invasion with SAL HEPATICA

Periapical infection is focus No. 1; pyorrhea areas, focus No. 2. . . . Retained root fragments, too, are very often foci of infection.

By successfully eliminating body wastes through gentle laxation, Sal Hepatica checks systemic involvement.

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ity. By protecting the alkaline reserve at the proper balance, it strengthens resistance against infection and possible "reaction" from dental work.

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SAL HEPATICA CLEANS THE INTESTINAL TRACT AND COMBATS ACIDITY

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"Will This Hurt, Doctor?"



Do you have to answer this question evasively?

Unfortunately the public's concept of dentistry is focused more upon pain and discomfiture than upon the benefits of proper dental care. The influx of patients into dental offices due to the recent lay publicity on the Hartman solution is, in itself, striking evidence that people will come to the dentist when they no longer fear being hurt.

The lay publicity given the Hartman solution has impressed *painless* dentistry on the minds of the public. Dentists are aware of the limitations of this new desensitizer. But in the lay mind, it is an eradicator of all dental pain. More than ever before are people asking, "Will this hurt, doctor?" Greater than ever before is the practice-building opportunity for dentists who do not have to answer this question evasively.

There is a pleasant, safe, economical means of meeting this demand for pain elimination—analgesia with the McKesson Nargraf or Euthesor. The soothing reaction of McKesson analgesia puts the patient at ease. Taut nerves and muscles are relaxed. Apprehension of pain is replaced by comforting assurance. The operation is completed quickly, painlessly. The patient leaves the office with a sounder faith in dentistry and greater confidence in his dentist.

The technic for operating McKesson apparatus is simple, safe. And the investment is surprisingly small.



McKesson literature will tell you more about nitrous oxide analgesia, its technic, possibilities and cost.

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LETTER TO THE EDITOR

Gold foil fillings have been found to be best for mesio-occlusal restorations in bicuspid but few patients can afford them. Silver fillings are satisfactory except for the staining that always follows. The material to use, therefore, as a compromise, is plastic porcelain. The difficulty of insertion in one minute, however, usually results in a defective restoration. The following plan prevents this and makes possible a restoration which provides a natural appearance and has fair lasting qualities.

The method to be described requires two instruments: a new Caulk amalgam carrier (large) and a number 4 Ivory or Harper matrix holder. A matrix of 30-gauge copper is best because it stays in place while the matrix holder is being applied. The way to make the copper matrix is to lay a steel matrix on a sheet of 30-gauge copper, trace the outline with an instrument, and then cut it out with a pair of scissors.

1. When the cavity is prepared, the matrix and the matrix holder are applied; the cavity lining is applied to the cavity and the matrix, or the acid in the filling material will act on the copper matrix and cause it to break.

2. A three or four drop mix of plastic porcelain material is put in the amalgam carrier and applied to the cavity. The average cavity requires about one gun load.

3. After material is inserted into the cavity, it is tamped in place with a suitable instrument on which cocoa butter has been applied, so that it will not stick.

4. Varnish is then applied, and the restoration is finished with burs or sandpaper discs. If the matrix has been properly applied, no finishing is required between the teeth.

5. As soon as the material has been put into the cavity, the amalgam carrier should be taken apart and placed in water; otherwise it will be difficult to remove the plunger.

I have found that the amalgam carrier (steel) does not change the color of the filling material.

—GEORGE E. COX, D.D.S.,
Wilmington, Delaware.

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to
THE DENTAL DIGEST
you will find a convenient
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After extractions, hemorrhage is promptly controlled and pain subdued by insertion of Campho-Phenique on pledget of cotton.

Campho-Phenique in dry sockets insures against infection and promotes healing. Bacteriolysis is effectively secured without irritation.

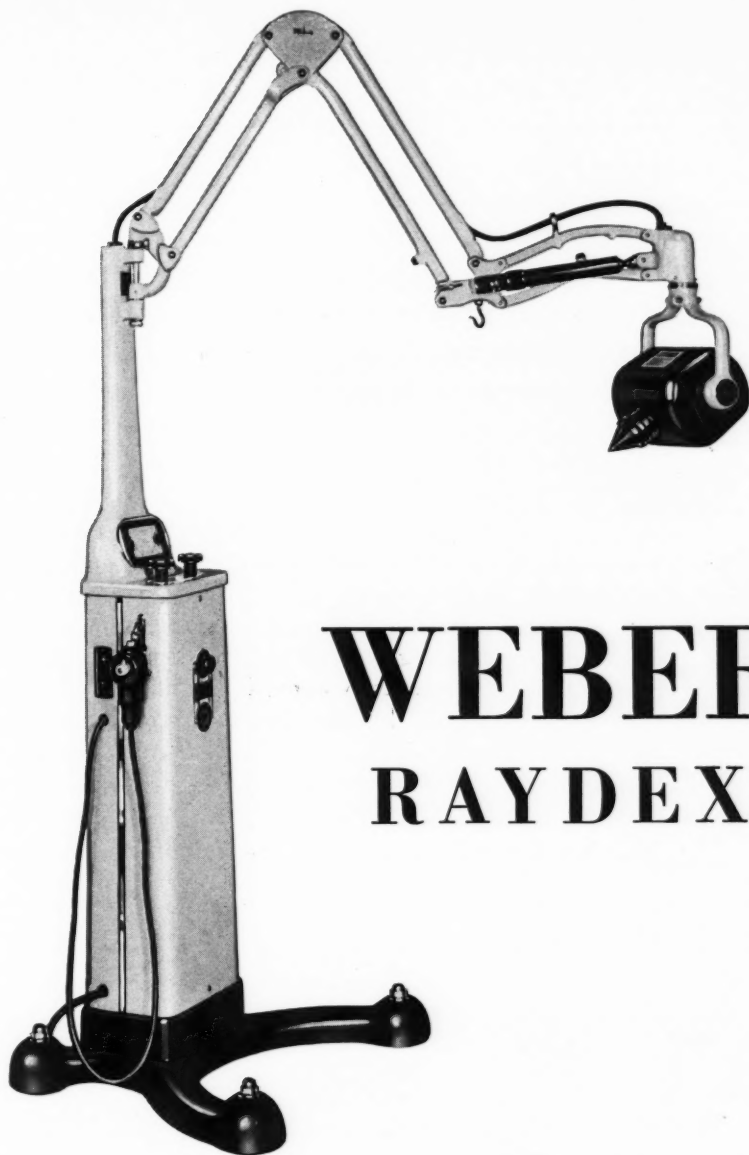
As an extra precaution, instruct your patients to get a bottle of Campho-Phenique from the Drug Store.

Campho-Phenique is available in 1, 2 & 4 ounce bottles at all Drug Stores and Dental Supply Houses.

Safeguard your work by adequate follow-up recommendations for intervals between office treatments.

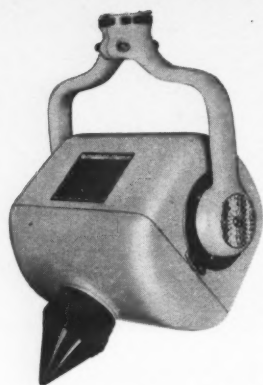
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*A new chapter
in X-Ray progress*

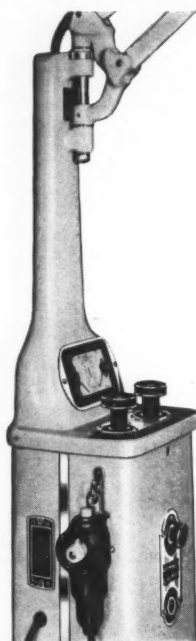


WEBER
RAYDEX

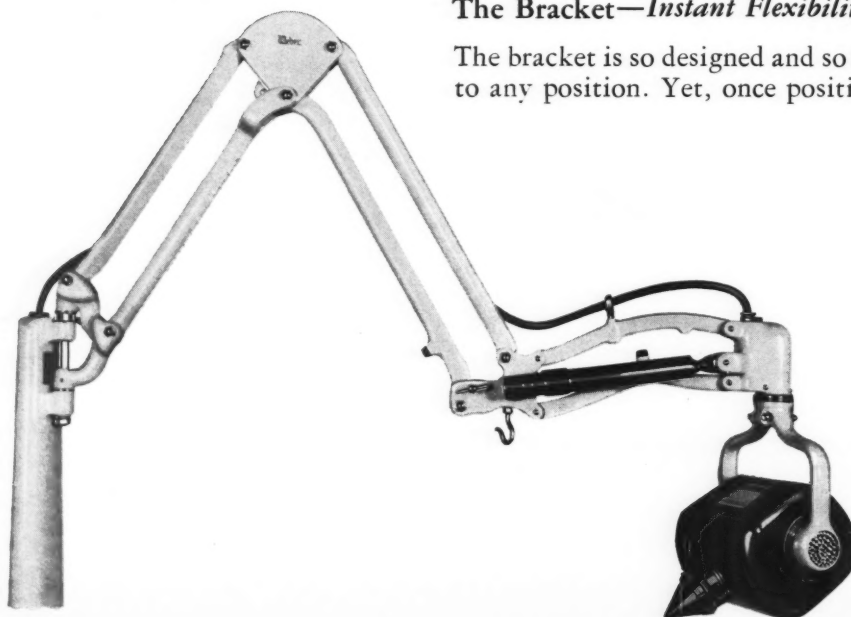
An achievement in efficiency and style



Safety. Beauty. Instant Flexibility. Angulation is calibrated by angle indicator. A time exposure table is framed on either side of Head Housing.



The graceful tapering lines of the column and cabinet give the whole assembly an appearance of pleasing symmetry.



SINCE the introduction of the first Weber x-ray in 1925, the widespread acceptance of radiography as the only complete and authentic method of dental diagnosis has been accompanied by constant development in the design and construction of Weber x-ray equipment.

During this period thousands of Weber x-rays have been installed in dental offices. Competent engineering and painstaking attention to every manufacturing detail have identified these machines with the highest character of satisfactory service.

In presenting the new Raydex model to the dental profession, Weber is proud to call attention to the manufacturing experience, painstaking research and engineering skill which are crystallized in this new contribution to dental radiography.

The Raydex fulfills every x-ray demand of modern dentistry for clear accurate radiographic results, ease of operation, pleasing symmetrical beauty, dependable construction, and safety. It embodies every modern scientific x-ray improvement in a design which is handsome and efficient in every detail.

The Head—*Positive Safety Plus Beauty*

The tube and transformer are immersed in oil (the best insulator known) in the gracefully designed head. Oil immersion of all high tension parts provides the utmost in safety for both operator and patient, eliminating all possibility of shock or injury through contact during exposure. The insulated construction provides positive protection against secondary ray leaks.

The improved design of the head is compact, graceful. Corners are gracefully rounded. All excess weight is eliminated. The head mounting permits complete rotation of the head in a horizontal plane and vertical adjustment through an arc of 320°. Thus the head is instantly adjustable so that the ray may be directed to any desired area.

The Bracket—*Instant Flexibility Combined with Stability*

The bracket is so designed and so finely balanced that it can be easily adjusted to any position. Yet, once positioned, it remains steady, fixed. The bracket range is ample for all dental requirements. The stationary type can be equipped with an auxiliary bracket for long range use. The universal-angulation of the head combined with the flexibility of the bracket provide the Raydex with an unlimited latitude of adjustment—any position in an instant with the slightest effort.

Precision balance combined with sturdy construction. In a free smooth movement the head is instantly adjustable to any position. Once positioned there is no tendency to sway or vibrate.

Power—For the Highest Character of Radiographic Results

Powered for the most exacting x-ray requirements, the Raydex has a useful voltage of 45,000 and a peak k. v. of 65,000. In intra-oral, extra-oral, posterior, anterior—in every type of dental radiography—and under the most exacting conditions, Raydex radiographs have the depth, uniform clearness and definition, which provide the dentist with the maximum of diagnostic detail. In addition to its use in dental radiography, the Raydex is amply powered for clear, detailed x-rays for such extremity radiographs as the hands, feet, legs, arms, and shoulders.

K. V. Range—A New Advantage in a Dental X-Ray

The Raydex is the only dental machine having a k.v. range. A five step k. v. control permits a k. v. range of from 45,000 to 65,000. This provides low kilovoltage for 3rd dimension depth, finer flesh texture without loss of bone detail and greater diagnostic possibilities.

The Cabinet—Attractive, Sturdy, Convenient

The cabinet is of all metal construction and modern in design. In it are housed the auto transformer and the wiring and control panel. A chromium band marks the separation of the front and back halves.

The front half is easily removed thus making the electrical mechanism readily accessible. The wiring and control panel is designed and mounted so that in a simple operation the entire panel can be readily removed from the cabinet.

Controls—Every Control Within Instant Reach

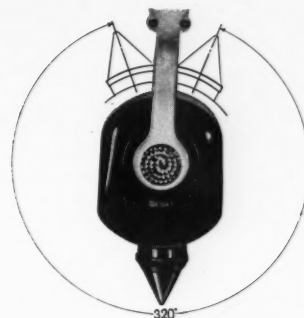
All controls are readily accessible. All indicators are located for accurate and easy reading. Voltage and kilovoltage controls are located on the cabinet top. The milliamperage adjustment and pilot light are on the cabinet front. The circuit breaker switch is on the side.

The voltmeter and milliammeter with large easily read dials are located flush in the face of the column. All exposure positions are indicated by angle meters.

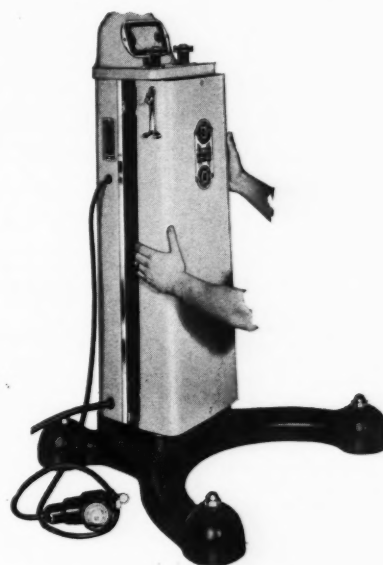
The improved Weber clock timer with reset feature provides an added assurance of accurate time control. With this reset feature the Weber timer can be reset by hand as many times as necessary, whereas with the ordinary clock time, once set, the exposure time can be changed only by running the indicator back to the required seconds before making exposure.

General Design—New Efficiency. New Pleasing Symmetry

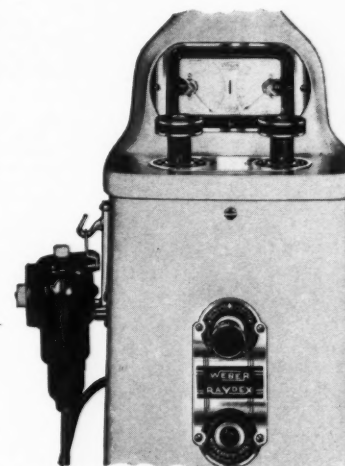
The Raydex provides more than efficient x-ray performance. It brings to dentistry a new pleasing design in x-ray equipment. In its graceful sweeping lines there are no projecting parts, no dust-gathering corners. In its symmetrical simplicity it is an achievement in modern equipment style. Its handsome lines are enhanced by the beautiful lustre of Weber finish and the attractive sparkle of chromium trim. Here, indeed, is a piece of equipment that will lend a new beauty to any dental office.



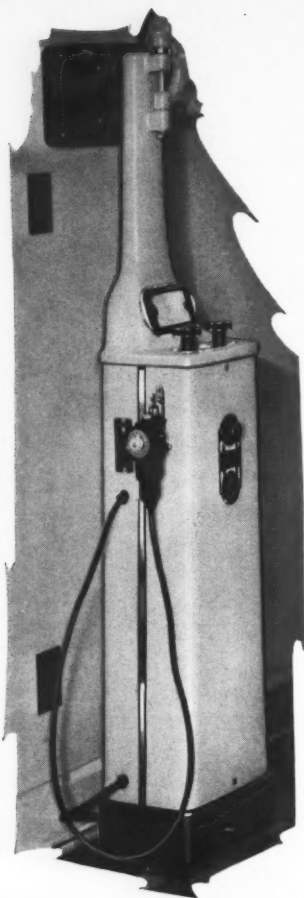
Universal angulation. The head turns through a complete horizontal circle. The cone can be adjusted vertically through an arc of 320°. Movement to any position is almost effortless.



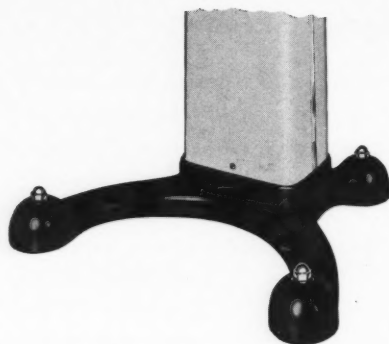
Attractive modern design. Sturdy all-metal construction. Convenient accessibility to all internal parts.



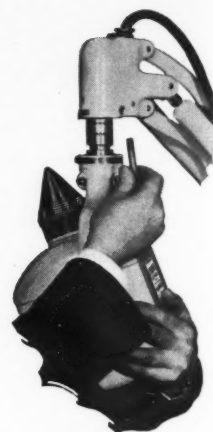
The control area. All controls within instant reach of the operator. Voltmeter and Milliammeter designed and positioned for easy reading.



The stationary type is attached to wall and floor by means of adjustable pins which may be provided for any desired office width.



The mobile base is designed for ease of mobility and assured stability. Finished in fused porcelain.



Ease of assembly is an outstanding feature. It is a simple one-man job to mount the head on the bracket. Average time for complete assembly of entire machine is approximately thirty minutes.

General Construction—*Skillfully Engineered, Dependably Built*

The Raydex has been engineered to provide the highest character of radiographic performance. It is built to render that service unfailingly. Efficient manufacturing practices have made it possible to produce this splendid x-ray at a moderate cost. But in no item of its construction has the quality of materials been spared. In no process of its manufacture has the most vigilant supervision and inspection been neglected. The Raydex is designed and built in every detail to render the character of service that will make its owner proud of ownership.

HERE is an x-ray that eminently meets every x-ray demand of modern dentistry. Power and penetration to bring out every possible detail of diagnostic value in radiographs . . . Balance and flexibility which permit adjustment to any position instantly and almost without effort . . . Absolute safety to both patient and operator . . . Stability that prevents vibration and sway . . . Ease of operation that saves time and energy . . . Modern attractive design and dependable construction which insure lasting satisfactory performance

Mobile Type \$895

Stationary Type \$850

Prices slightly higher in the West.

WEBER

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ON TO SAN FRANCISCO— CONVENTION CITY

By SANFORD M. MOOSE, D.D.S.

THE other day I rode the cable car on California Street. It was not my first ride on one of those quaint cars that slide noiselessly along the slotted trackway, but it was as usual a novel experience. When it stopped on the top of Nob Hill, I could see the blue water of San Francisco Bay, and rising above it the great steel towers and the massive cables of the world's largest bridge now being built to join San Francisco and the Eastbay.

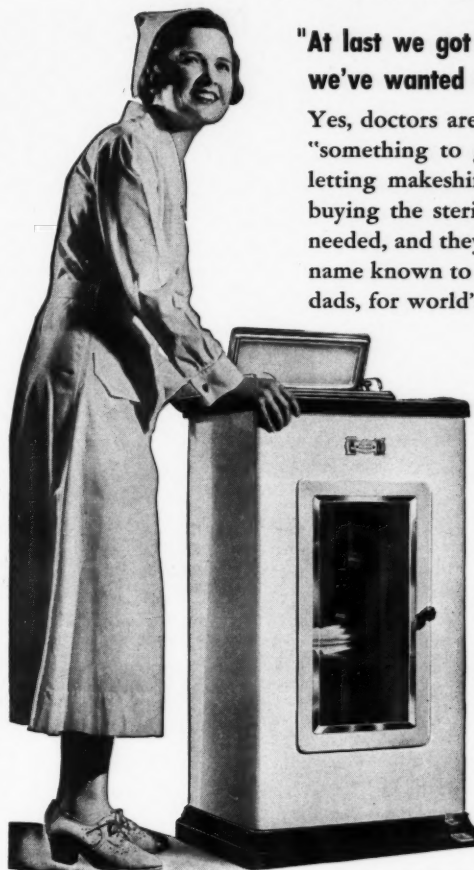
As the car descended steep California Street, dropping past world-famous hotels, bisecting San Francisco's Chinatown, and continuing on through the financial center of the West, I thought of the pleasant days ahead for the thousands of dentists and their wives and children who will visit San Francisco for the Seventy-Eighth Annual Convention of the American Dental Association, July 13-17.

In imagination, I placed myself in the rôle of guide to one of the dentists and his wife and daughter, say from Chicago—three people who had never before been in San Francisco. I tried to visualize the highlights of their stay in San Francisco: their first sight of the city with its towered hills rising above the Golden Gate; the hours they would spend in the smart shops, museums, parks, and along the Embarcadero; the street of ships and men from all parts of the world.

And what of the fascinating history of San Francisco? First of all, I would tell these visitors of the adventurous Forty-Niners, those men who had broken away from living that was soft; and of other men who came from trading in the Seven Seas to swarm into the town where gold was plentiful. The spirit that they left is here today—a spirit of adventure and romance—added to the inheritance that has come down to us from the Spanish Dons and Senoritas. I'd tell them something about the cosmopolitan life of San Francisco, her picturesque Chinatown, colorful Italian quarter close to the Bay, and other foreign colonies. And talking about these things I would be driving with them along a curving road to the top of the city, to Twin Peaks.

From a height of nearly a thousand feet, we could look down upon this city of three quarters of a million people. We could see her location on

A *Castle* REPLACES OUR OLD MAKESHIFTS



"At last we got the sterilizer we've wanted so long"

Yes, doctors are no longer shopping for "something to get by with", no longer letting makeshifts "do". . . . They are buying the sterilizer they have so sorely needed, and they naturally buy Castle—a name known to them and to their granddads, for world's sterilizer leadership.

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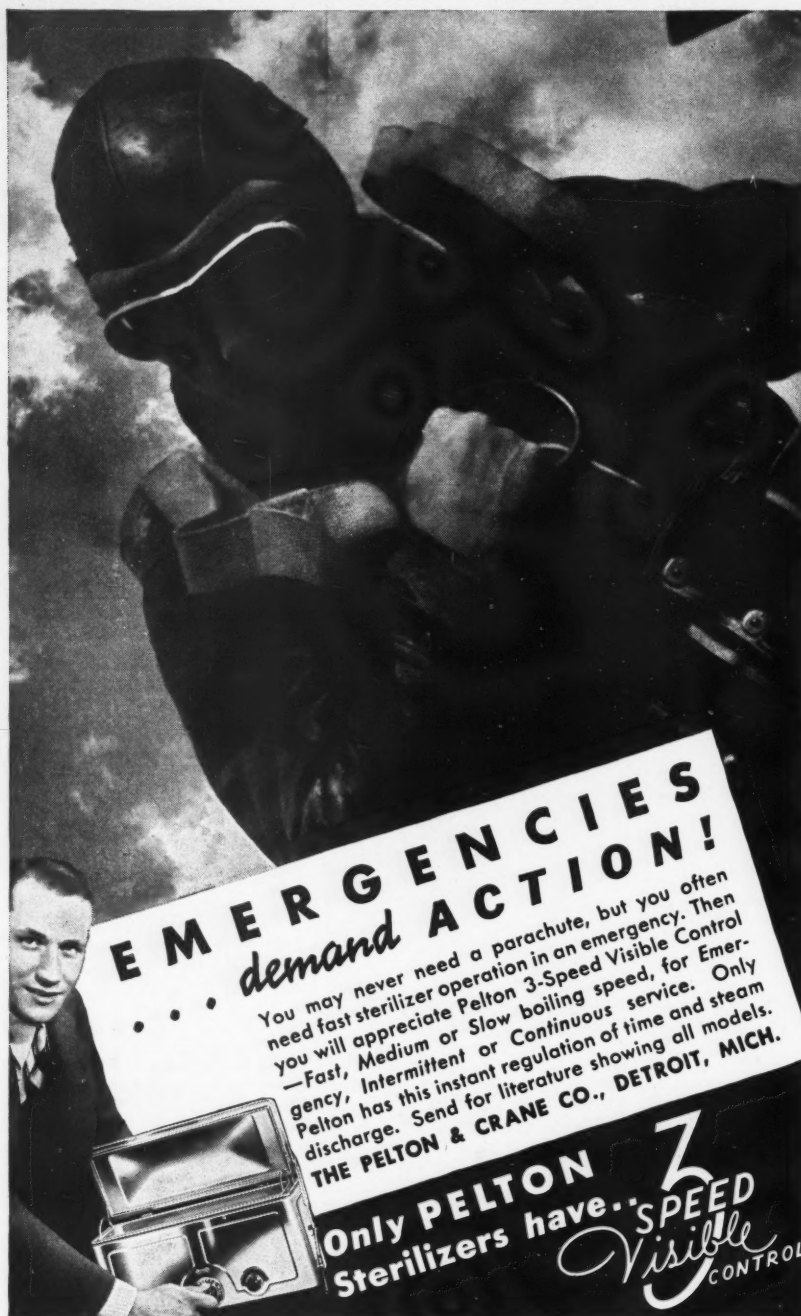
AN OUNCE

Because of the present low silver market the price of Lee Smith Keystone Alloy has been reduced to \$1.50 an ounce in five ounce bottles. Any increase in the cost of silver will force an increase in this price.

Keystone Alloy is supplied in a new cut to fit your alloy-mercury proportioner.

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You may never need a parachute, but you often need fast sterilizer operation in an emergency. Then you will appreciate Pelton 3-Speed Visible Control—Fast, Medium or Slow boiling speed, for Emergency, Intermittent or Continuous service. Only Pelton has this instant regulation of time and steam discharge. Send for literature showing all models.

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Only PELTON Sterilizers have... *3 SPEED Visible CONTROL*



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IN TUBES!

A few strokes of the spatula and it's ready to use—this splendid corrective impression material, better and easier to use than ever before! No smarting. Setting speed always under control. And 40% more Paste at the same price: \$2.50 at dealers. Unconditionally guaranteed. Giving superior results. Try it; you'll see.

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the tip of the peninsula, surrounded by the Pacific Ocean and one of the largest bays in the world. The whole city would be spread before us—tall office buildings in the downtown district, hotels and apartment houses on top of the hills, the Government Presidio and Golden Gate Park, set off by dark green landscape in the distance. Across Golden Gate strait we would see the blue hills of Marin County, and across the Bay, Oakland, Berkeley, and Alameda; beyond them, rugged Mount Diablo and the Coast Range Mountains.

Coming down from Twin Peaks, we would cross Market Street, one of the widest thoroughfares in America. After passing the stores and crowds on that historic street, we would soon come to Grant Avenue and its ultra-smart shops, and by that way we would enter Chinatown. If it were night, the Neon lights would welcome us. Sounds of the Orient would come to us from the pagodas and the balconies, to mingle with the pungent odor of burning punk.

I would show my guests the Chinese Telephone Exchange, the only one of its kind in this country and designed like a temple in Peking; the little bazaars, where they could buy mementoes without urging by the smiling proprietors; the Chinese schools and playgrounds; the Joss Houses, and many other sights. We might even dine in one of the colorful Oriental cafes, and display our knowledge of Chinese culinary art by ordering "Bor Law Har Kow," pineapple cooked with shrimp. Or we might instruct the celestial waiter to bring us an order of "Kwah Law Ab," roast duck with sweet sauce. Whatever we'd order, I know it would please our friends from Chicago, for these Chinese are really good cooks.

Another time we would visit Fisherman's Wharf, a colorful bit of the Mediterranean set down near the Golden Gate. We would stroll along the wooden wharves and gaze at the gaily painted little fishing boats in the lagoons below. We would see Italian fishermen mending nets and others generally busy about their boats, preparing for their next fishing trips.

Naturally, we would stop in at one of the sidewalk grottoes for a snack, perhaps for a sea-food dinner. The crabs we would see would be among the very largest and the most deli-

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determine the best combination of
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The Priceless Ingredient of Every Product Is the Honor and Integrity of Its Maker

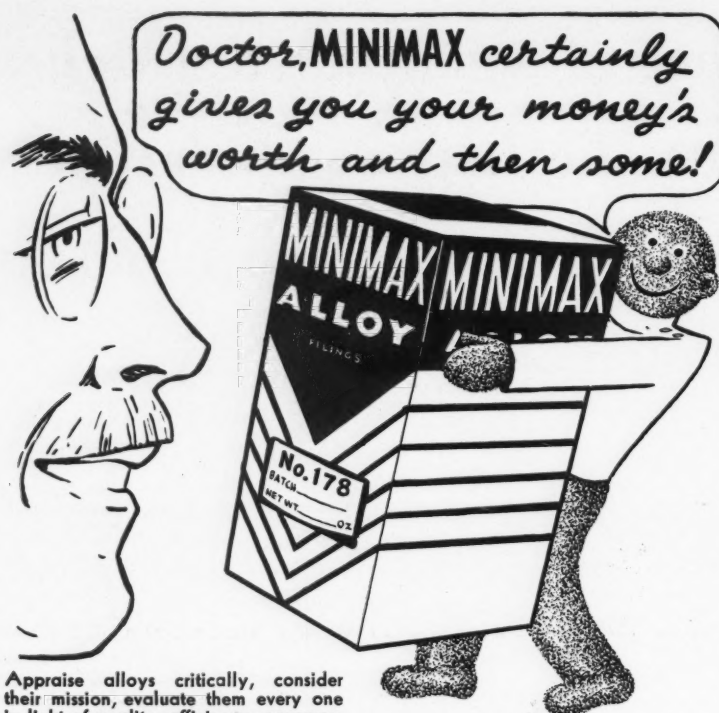
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THE DENTAL DIGEST
1005 Liberty Ave.
Pittsburgh, Pa.

cious in the world, cooked at the wharf in large cauldrons on top of round-bellied stoves on the sidewalk.

No guide could show San Francisco in one day. I wouldn't attempt it either. But I *would* plan a round of night's entertainment in the most colorful of San Francisco's night clubs; or perhaps a visit to a Chinese theatre, to witness a drama of the Orient, portrayed by a troupe from Canton; or maybe an automobile drive down the peninsula to Burlingame, with dinner at some interesting place.

Golden Gate Park, the country's largest man-made park, would surely be somewhere on our itinerary. Among the flowers, trees, shrubs, along the four miles of winding roads, I would show my friends the various museums, the aquarium, the Japanese Tea Gardens, Stow Lake, the animal runs, the man-made waterfalls.

Fleishacker Zoo and playground would not be overlooked; nor would the Cliff House and the ocean beach.

At Lincoln Park, where the golf course overlooks Golden Gate strait and its passing ships, we would play a round. From some vantage point on the course, I would show my visitors the tall steel towers of the world's longest suspension bridge being erected across the gate, the Golden Gate Bridge.

And the Presidio! We'd drive around the park-like military reservation, pointing out such spots as the oldest adobe building in San Francisco, dating back to 1776; and other interesting sights to be seen within this largest of government reservations located within a city.

We would see little old historic Mission Dolores, founded by the Franciscan fathers, one of the twenty-one missions in the California chain extending from San Diego to Sonoma. The Mission and its grounds vividly recall old Spanish days in California.

Leaving my guests at their downtown hotel, I would be certain that San Francisco had pleased them. There was, of course, much more to see, but organized tours and entertainment would have been arranged to show them more, and of that I had the assurance of Doctor Raoul H. Blanquie, chairman of our Committee on Arrangements.

THE PUBLISHER'S NOTE BOOK

ACCORDING to an announcement last month by Doctor F. van Minden, the Chicago Dental Society's educational committee chairman, the Society is providing each member with ten free reprints of *The Chicago Tribune's* two-page feature, "Your Teeth or Your Life!" by John A. Menaugh. It was suggested that these be presented to patients. Members of the Chicago Society may secure additional copies at one dollar a hundred. *The Tribune* article was reproduced in miniature, and described, in last month's *Oral Hygiene*.

"This article has received much favorable comment and we believe it has done much good for dentistry," said Doctor van Minden. "The Chicago Dental Society considers it of so much educational and scientific value that the Board of Directors has made funds available enabling the educational committee to distribute ten copies to each member." Any surplus will be made available to other dental societies.

Doctor van Minden's announcement appeared in the Society's *Bulletin*, which also carried a letter to the membership from Doctor Edward J. Ryan, as president of the organization, paying tribute to Doctor Sidney L. Rubens and Doctor Paul Wilcox, who cooperated with *The Tribune*.

The first page of the article was illustrated with three full-color reproductions of DENTAL DIGEST charts, from the series which has been running in this magazine for several years, several having been reprinted in booklet form for use at the chair. The charts reproduced by *The Tribune* include Dental Conditions, The Action of Local Anesthesia, and The Result of Neglect. Mr. Menaugh's article refers to the Hartman desensitizer, cautioning the laity against regarding it as a panacea.

More than a million families were reached when the feature first appeared in *The Tribune* itself; according to the newspaper, about fifteen million more families will be reached through other newspapers subscribing to its syndicate.

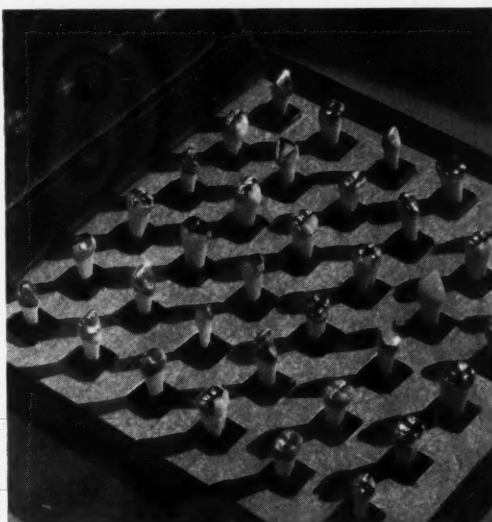
This magazine was glad to be privileged to cooperate.

MERWIN B. MASSOL, *Publisher*

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Because the materials in Ames Cement are properly balanced, it provides the toughness so necessary to withstand the lateral stresses to which inlays and crowns are subjected in use. Ames Cement meets not one only but all the requirements of practice, assuring lasting satisfaction to patient and good will to dentist in all cementations.



THE W. V-B. AMES COMPANY
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Ask your dealer about the money-saving Ames Duplex package.



Effective April 1

The price for Dental Digest binders is now \$2.50. This is a slight increase over the former price and is necessary because of higher costs on new lot of binders just received. At this price we are still furnishing these binders to readers at cost. Order your copy now.

THE DENTAL DIGEST
1005 Liberty Ave., Pittsburgh, Pa.

See page 109

D.D.4

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See page 131

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BRISTOL-MYERS COMPANY
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Please send literature and clinical supply of Sal Hepatica.

Dr. _____

Address _____

City _____

See page 132

D.D.4

McKESSON APPLIANCE COMPANY
TOLEDO, OHIO

Please send complete information and literature mentioned in ad.

Dr. _____

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proper muscular control
CO-RE-GA is a first aid
necessity " " " "

DENTISTS—Free Samples for Your Patients—MAIL COUPON

COREGA CHEMICAL COMPANY
208 ST. CLAIR AVE. N.W.—CLEVELAND OHIO, U.S.A.
Please Send free Samples for Patients

Dr. _____

This coupon is for dentists use only.

CO-RE-GA is not advertised to the public

See page 133

D.D.4

WILMOT CASTLE COMPANY
1109 UNIVERSITY AVE., ROCHESTER, N. Y.

Please send book "Modern Sterilization" mentioned in ad. I understand there is no cost or obligation.

Dr. _____

Address _____

Dealer _____

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D.D.4

LEE S. SMITH & SON MFG. CO.
7325 PENN AVENUE, PITTSBURGH, PA.

Send me—five ounce bottles of Keystone Alloy (one bottle, \$7.50; two bottles, \$14.20).

Dr. _____

Address _____

Dealer _____

(Price subject to change without notice.
Good only in the United States).

See page 134

D.D.4

PELTON & CRANE COMPANY
632 HARPER AVENUE, DETROIT MICH.

Send complete literature concerning Pelton Sterilizers. I understand there is no cost or obligation.

Dr. _____

Address _____

Dealer _____

See page 134

D.D.4

KELLY-BURROUGHS LABY.
143 NORTH WABASH AVE., CHICAGO, ILL.

Please send complete information concerning Dr. Kelly's Impression Paste in Tubes.

Dr. _____

Address _____

City _____

See page 135

D.D. 4

E. R. SQUIBB & SONS, DENTAL DEPT.
3204 SQUIBB BLDG., NEW YORK CITY

Attached hereto is my professional card
of letterhead. Please send me complimen-
tary package of Squibb Dental Cream.

Dr. _____

Address _____

City _____

See page 139

D.D.4

BUFFALO DENTAL MFG. CO.
KEHR & URBAN STS., BUFFALO, N. Y.

Please send me a copy of your new vul-
canizer booklet. I understand there is no
cost or obligation.

Dr. _____

Address _____

Dealer _____

See page 140

D.D.4

EMERSON DRUG COMPANY
BALTIMORE, MD.

Please send sample and literature men-
tioned in ad.

Dr. _____

Address _____

City _____

See third cover

D.D.4

COLUMBUS DENTAL MFG. CO.
COLUMBUS, OHIO

Send new free booklet mentioned in
ad please.

Dr. _____

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City _____

See fourth cover

D.D.4

DENTISTS' SUPPLY COMPANY
220 WEST 42ND STREET, NEW YORK CITY

Please send technic book mentioned in
ad.

Dr. _____

Address _____

City _____

This new health-protecting nutritive maintains the vitamin-C reserve

Cal-C-Malt, mixed with milk, makes a delicious beverage.

It is indicated

1—as a nutritive tonic

2—as a preventive and corrective of vitamin-C deficiency

Included among vitamin-C deficiencies are lowered resistance to infection, toxic states, dental caries, faulty development, hemo-vascular disorders, cachectic states, intestinal dysfunctions, and allergy.

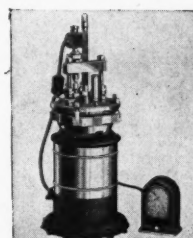
Two heaping teaspoonfuls contain:

- vitamin C (50 milligrams chemically pure cevitic acid) equal to the vitamin C content of 3 ounces of fresh orange juice.
- diabasic calcium phosphate, a readily assimilable form of calcium, 7½ grains.
- together with effective amounts of vitamin B₁, B₂ (G), cane and malt sugars, finest quality wind-blown cocoa, and the non-fatty food elements of milk. Chemical analysis shows also the presence of iron, phosphorus, magnesium, and other valuable mineral salts.

For adequate vitamin-C dosage prescribe CAL-C-MALT

HOFFMANN-LA ROCHE • INC • NUTLEY • N. J.

Are You Selecting a Vulcanizer?



Automatic Electric Edson

In selecting a dental vulcanizer, the questions of safety and durability are of the utmost importance. They should be given serious thought long before the matter of price is considered.

In the past 69 years the dental profession in all parts of the world has established a strong preference for Buffalo Dental Vulcanizers. No doubt this preference will continue because it is based entirely on the simplicity, durability and splendid workmanship of these machines.

What better reasons can you ask for making a Buffalo Dental Vulcanizer your choice?

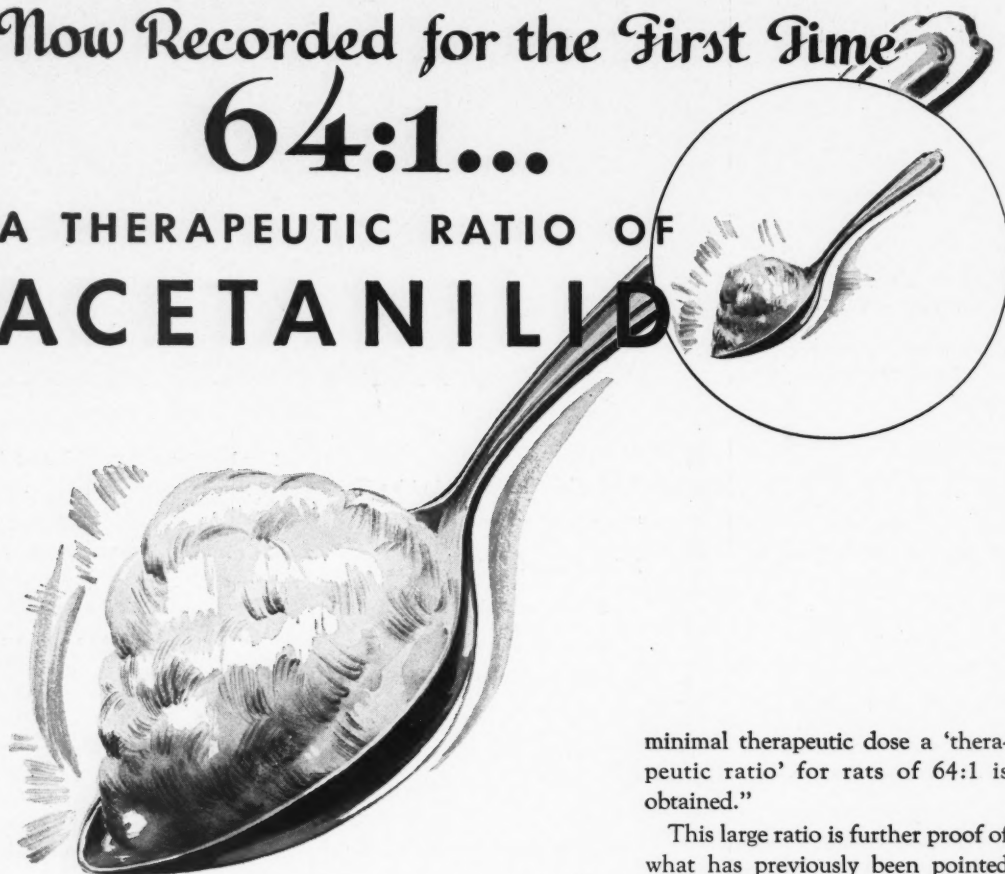
Our new vulcanizer booklet is interesting. Send for a copy.
(See coupon on this page.)

BUFFALO DENTAL MFG. CO., Kehr & Urban Sts., Buffalo, N. Y.

NO. 27 of a Series of Advertisements prepared in the Interest of Acetanilid U. S. P. by the EMERSON DRUG COMPANY

Now Recorded for the First Time
64:1...

A THERAPEUTIC RATIO OF
ACETANILID



minimal therapeutic dose a 'therapeutic ratio' for rats of 64:1 is obtained."

This large ratio is further proof of what has previously been pointed out by other authorities, namely, the safety of acetanilid in therapeutic doses.

"STUDIES of the antipyretic activity and toxicity of acetanilid in the same species of animal have not heretofore been recorded," say Smith and Hambourger*. These investigators gave acetanilid to rats made febrile by subcutaneous injections of yeast, and observed that the average minimum dose producing fall in temperature was 12.5 mg. per kilogram. Fatal doses averaged 800 mg. per kilogram.

They conclude—"By dividing the 'fatal dose' of acetanilid by the

Acetanilid, known even more widely for its pain-relieving properties than its antipyretic action, is available in a scientifically prepared pharmaceutical. Caffeine and bromide have been added, and the combination has been made into a palatable effervescent drink by the inclusion of citrates. A request will bring you promptly sample and literature.

*P. K. Smith & W. E. Hambourger, *J. Pharm. & Exp. Ther.*, July, 1935, p. 346.

EMERSON DRUG COMPANY, BALTIMORE, MD.



YOUR PATIENTS, what do they talk about?

Your Patients, after leaving your office, often talk about their dentistry.

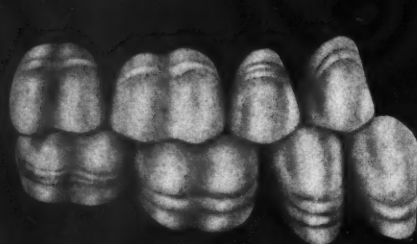
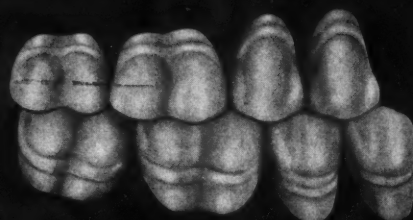
Such conversation can and does affect any dentist's practice. Pleased patients often recommend their doctor to friends and relatives.

This is merely one reason many dentists prefer using **Steele's Interchangeable Trupontics**—especially in cases requiring the best available tooth for fixed bridgework.



Adaptation of Trupontics to tissue is important. A new free booklet is available covering this subject. Send for it.

INTERCHANGEABLE LENGTHS IN NEW TRUBYTE 20° POSTERIOR



YOU WILL PROBABLY NEVER HAVE TO MIX LENGTHS IN A PRACTICAL CASE AS THEY ARE MIXED IN THE TWO LOWER SET-UPS, -BUT NEW TRUBYTE 20° POSTERIOR WILL INTERCHANGE AND STILL ARTICULATE PERFECTLY.

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